MESSAGE FROM DEPARTMENT CHAIR

I hope this message finds you all in good health and high spirits. Over the past few months, our department has achieved significant milestones, thanks to the unwavering dedication and hard work of our faculty members, staff, and students. Our research initiatives continue to make valuable contributions to our field, and I'm proud to see our faculty members publishing ground-breaking papers. In conclusion, I am proud of the progress we have made as a department. Together, we have achieved so much, and I have no doubt that we will continue to reach new heights. Let's maintain our focus on excellence, collaboration, and innovation as we move forward.

Thank you once again for your dedication and hard work. I am excited about our future endeavors and look forward to celebrating even more successes together.

- Dr. Krishnamoorthi Makkithaya

Faculty Mentor

Dr. Srikanth Prabhu

Editor- in-Chief

Dr. Radhakrishna Bhat.

Editorial Team

1. Mr. Ashwath Rao B.

2. Mr. Govardhan Hegde

3. Ms. Rajashree Krishna

4. Ms. Priya Kamath

6. Ms. Vidhya V.

7. Ms. Shana Ailene

8. Vidya Prabhu

DEPARTMENT EVENTS

TECH TALK

Dr Rajiv Raman, an Eminent Clinician & Scientist from Sankara Nethralaya, Chennai and visiting faculty at IIT, Madras along with Dr Ramesh S Ve, Professor in the Department of Optometry, MCHP visited the department on 18th January 2023 for a brief discussion and possible collaboration for research projects.

VITERBI LECTURE SERIES

Dr K.M Makkithaya, HOD CSE Dept and Dr Ashalata Nayak organized a webinar on March 27th 2023 as a part of Viterbi Lecture Series webinar on topic " How do recommendation systems work? And, what are their privacy implication?". The talk was delivered by Professor Murali Annavaram, Dean Chair Professor in the ECE and CS departments at USC.

WORKSHOP SESSION ON PYTHON BASICS USING GOOGLE COLAB

Research Scholar Krishnaraj Chadaga along with Niranjan U.C being resource persons for the hands-on workshop session on Python Basics using GOOGLE COLAB conducted at Moodlakatte Institute of Technology during 11th February 2023.

VOLVO GROUP INDIA CAPABILITY ENHANCEMENT FOR ACADEMIC EXPERT PROGRAM

Dr. Narendra.V.G and Dr. Ahamed Shafeeq B. M participated in the " Capability Enhancement for Academic Experts" conducted by Volvo Group India from May to June 2023. The one-month program is an initiative to bridge the skill gap between universities and industries by enhancing the capabilities of academic experts.

DEPARTMENT EVENTS

GUEST LECTURE ON "CMOS DESIGN LIBRARIES/DDK/PDK"

The Department of Computer Science & Engg., MIT Manipal in association with NXP Semiconductors organized a guest lecture titled "CMOS Design Libraries/DDK/PDK" on 4th April, 2023. Ms. Vandan Narula, PDK SW1 Manager and Mr. Pramod Gayakwad, Principal Engineer both from NXP Semiconductor were the resource persons. Around 250 participants out of which 77 were from MIT Manipal. The event was very much appreciated by participants.

INTERNAL HACKATHON FOR KAVACH 2023

The KAVACH-2023 nationwide hackathon is co-organized by the MoE's Innovation Cell, AICTE, the Bureau of Police Research and Development (BPR&D, MHA), and the Indian Cyber Crime Coordination Centre. (I4C, MHA). KAVACH-2023 is an exceptional chance for higher education students and startups in India to contribute their creative concepts and ideas to address the challenges of cyber security.

To nominate the top ten teams to participate in the final KAVACH 2023, on April 1st, 2023, Manipal Institute of Technology in collaboration with the MAHE-ISAC Center of Excellence for Cyber Security conducted a 12-hour internal hackathon.
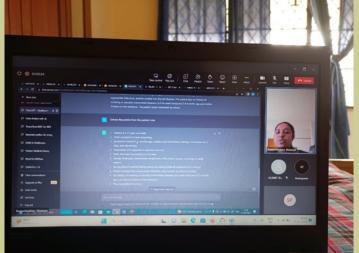
The event hosted 22 student teams of Manipal Institute of Technology having six members, involving atleast one female member. The hackathon was inaugurated by Dr. (Cdr.) Anil Rana, Director, Manipal Institute of Technology, Manipal. The teams were evaluated by by 8 panel members where each panel having experts in the field. After careful evaluation, ten teams were selected to participate in the final KAVACH competition.

KEYNOTE LECTURE

Dr. Srikanth Prabhu, Additional Professor delivered a keynote lecture on AI in Healthcare on 8th April 2022 for a session on "An Insight into Medical Informatics and Artificial Intelligence" jointly organized by the departments of Computer Science and Engineering, and Biomedical Engineering MIT, MAHE Manipal.

STARTUP TALK

The Department in association with Institutions Innovation Council organized an expert talk on "How to plan for a Start-Up?" on 28th April 2023. The talk was delivered by Swaminathan, PhD., Director of Business Development and Strategy, The Axia Institute, Michigan State University, USA. Dr. Swaminathan is responsible for cultivating corporate partnership and supporting research efforts. Around 140 students participated for the talk.

STUDENT ACHIEVEMENTS

♦ The student team comprising Rahat Santosh, Abhinav Agarwal, and Pranshu Goyal received the Certificate of Excellence for the Samsung PRISM worklet titled "On Device Naive Utility for Creating and Modifying ONNX Models." Dr. Mamatha Balachandra and Dr. Radhika Kamath were the mentors.

♦ As part of collaboration of MIT Manipal with International Institute of Information Technology, Hyderabad five students of CSE department have been chosen for internship. Ms. Jahnavi Umesh, Mr. Nihal Rian Dias are chosen for six months paid internship while Ms. Sarveshwari Keralikar, Mr. Anirudh Kanaparthy and Mr. Abhishek Jhawar have chosen for two months internship. The internship commences from June first week, 2023. Prof. Narendra V G, Mr. Ashwath Rao B and Ms. Musica Supriya coordinated the process from MIT side.

♦ A team comprising Arushi Gandhi(4th year, Dept of ICT), Deepesh Garg (4th year, Dept of ICT) and Arnav Lohiya(3rd year, Dept of Chemical Engg) under the guidance of Dr. Sucheta Kolekar stood first in esteemed Matrix forum University Contest 2023 held on 7th June, 2023 in Bengaluru. The students are part of Team Fundinc. The winners received a cash prize of Rs. 50,000 and lifetime membership with TiE

♦ Supriti Vijay(4th year, Department of CSE), Aman Priyanshu(4th year, Dept of ICT) and Pratinav Seth(3rd year, Dept of DSCA) were among the eleven undergraduates selected worldwide as AAAI Undergraduate Scholars 2023. Each one of them was awarded a Travel Grant of $2000 and presented their work at the Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI-2023)(A* Conference) which was held on February 7-February 14, 2023, at the Walter E. Washington Convention Centre, Washington DC, USA

♦ Swayam Tejas Padhy is certified as an offensive security wireless professional by the offensive security department on 8th January 2023 after the completion of the examination.

♦ V Manushree and Dhyan Gandhi undergraduate student from CSE have got into Georgia Institute of Technology, USA to do their Masters in Computer Science.

♦ Mohammad Owais undergraduate student from CSE has got into Virginia Tech, USA to do his Masters in Computer Science.

♦ Supriti Vijay undergraduate student from CSE has completed her B.Tech practice school project at University of Copenhagen, Denmark from January 25 2023

FACULTY ACHIEVEMENTS

♦ Ms. Jashma Suresh P. P has been awarded doctoral degree by MAHE, Manipal for her thesis titled "Design and Development of a Hybrid Framework for Mining Non-Redundant Frequent Itemsets" under the guidance of Dr. Dinesh Acharya U and Dr. N.V. Subba Reddy

♦ Dr. Nagaraj Naik has been awarded certificate for reviewing Engineering Applications of Artificial Intelligence, Elsevier Journal during January 2023.

♦ **Patents filed**: The research work carried out by our dedicated researchers – Dr. Raghavendra U. (ICE), Dr. Krishnamoorthy Makkithaya (CSE) and Dr. Karunakar A. Kotegar (DSC) has received a patent titled "Method and System for Efficient Stereo Matching" by the Indian Patent Office. This invention proposes a novel technique for display estimation that helps 3D Reconstruction and Robotic surgery.

Dr. Raghavendra U   Dr. Krishnamoorthi   Dr. Karunakar

♦ Dr. Manjunath K N has received PEER Review certificate on February 2023 for reviewing three manuscripts during the year 2022 for Insights into Imaging an European Society of Radiology (ESR) journal acknowledges with gratitude the voluntary contribution as a reviewer, to help assess the quality and value of the manuscripts submitted to their journal during February 2023.

♦ Dr. Andrew has served as a Session Chair during the International Conference on "Intelligent Techniques in Computer and Engineering Science" organized by the Department of Computer Science and Engineering, College of Engineering Perumon, Kollam, Kerala on 15th and 16th June 2023.

♦ Mr. Ahamed Shafeeq B. M., faculty CSE served as resource person for a one day orientation session for PUC students on the topic "Career Guidance and soft skills development on 19th July 2023 at Al-Ihsan College, Muloor, Mangalore

♦ Dr. Srikanth Prabhu published a paper titled "An interactive web-based tool for predicting and exploring brain cancer survivability in Healthcare Analytics", Vol.3 published by Elsevier on 17th December 2022.

DEPARTMENT CLUB ACTIVITIES

LINUX USERS' GROUP

Faculty Advisor

Mr. Ashwath Rao

Events Conducted

1. 04/03/2023 Workshop on Morphological Analysis for Kannada Language

2. 06/03/2023 Workshop on Part-of-speech Tagging for Kannada Language

ACM STUDENT CHAPTER

Faculty Advisor

Dr. Srikanth Prabhu

Events Conducted

1. 5/02/2023 Internship Talk

2. A12 Feb to 14 Feb 2023 urora (ISTE X ACM)

3. 18/02/2023 Codentine 4.0 4. MIT OPEN an online coding contest - 14th Oct 2022 and 15th Oct 2022

4. 02/07/23 Masters AMA

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

VISION
Excellence in Technical Education through Innovation and Teamwork

MISSION
Educate students professionally to face societal challenges by providing a healthy learning environment grounded well in the principles of engineering, promoting creativity and nurturing teamwork.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION
Excellence in Computer Science & Engineering education through continuous learning, research and teamwork

MISSION
To impart excellent Computer Science & Engineering education for professional roles in a changing and challenging technological world, to advance knowledge through quality research in important emerging areas in the discipline and to build a strong relationship with industry, academia and society.

B.Tech Computer Science and Engineering

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

PEO1: Carry out engineering projects and develop new products in the area of Computer Science and Engineering and pursue higher studies.

PEO2: Innovate and be creative in the profession; apply analytical skills and demonstrate research capabilities in the field of computer science and engineering.

PEO3: Work in multidisciplinary environments and be responsive to the changing needs of the society.

PEO4: Communicate effectively, display leadership skills, and demonstrate professionalism.

PEO5: Engage in lifelong learning, apply the knowledge judiciously and remain continuously employable.

PROGRAM OUTCOMES (PO)

Engineering Graduates will be able to:

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO1: Analyse and solve real world problems by applying a combination of hardware and software.

PSO2: Formulate & build optimised solutions for systems level software & computationally intensive applications.

PSO3: Design & model applications for various domains using standard software engineering practices.

PSO4: Design & develop solutions for distributed processing & communication.

M.Tech Computer Science and Engineering

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

PEO1: To carry out projects and demonstrate design, analysis, and programming skills to solve computational problems in science and multidisciplinary engineering domain.

PEO2: Be actively involved in research and development and engage in lifelong learning leading to new innovations to meet the societal challenges.

PEO3: To take up a career in industry, academia or become successful entrepreneurs and excel as socially committed professionals by respecting ethical practices and maintaining integrity.

PEO4: To apply the knowledge of mathematics, research methodology and computer science and engineering education to pursue higher studies.

PEO5: To demonstrate leadership skills, teamwork and effective communication of the technical information and remain continuously employable.

PROGRAM OUTCOMES (PO)

PO1: An ability to independently carry out research /investigation and development work to solve practical problems.

PO2: An ability to write and present a substantial technical report/document.

PO3: Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

PO4: Apply problem solving skills and advanced concepts in Computer Science to breadth of topics in industrial applications.

PO5: Use mathematical foundations and research based knowledge for facilitating novel contributions to contemporary areas of computer science.

M.Tech Computer Science and Information Security

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

PEO1: To carry out projects and demonstrate design, analysis, and programming skills to solve computational problems in security and multidisciplinary engineering domain.

PEO2: Be actively involved in research and development and engage in lifelong learning leading to new innovations to meet the societal challenges.

PEO3: To take up a career in industry, academia or become successful entrepreneurs and excel as socially committed professionals by respecting ethical practices and maintaining integrity.

PEO4: To apply the knowledge of mathematics, research methodology and computer science and information security education to pursue higher studies.

PEO5: To demonstrate leadership skills, teamwork and effective communication of the technical information and remain continuously employable.

PROGRAM OUTCOMES (PO)

PO1: An ability to independently carry out research /investigation and development work to solve practical problems.

PO2: An ability to write and present a substantial technical report/document.

PO3: Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program.

PO4: Apply problem solving skills and advanced concepts in Computer Science and Information Security to breadth of topics in industrial applications.

PO5: Use mathematical foundations and research based knowledge for facilitating novel contributions to contemporary areas of cryptography and information security.