

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



INSTITUTION VISION

To become a globally recognized Institution that develops professionals with integrity who excel in their chosen domain making a positive impact in industry, research, business, and society

DEPARTMENT VISION

To acquire global excellence in the field of Computer Science and Engineering, nurturing in professionals, technical competence, innovative skills, professional ethics and social commitment.



INSTITUTE MISSION

- » To provide the ambiance necessary to achieve professional and technological excellence at the global level.
- » To undertake collaborative research that fosters new ideas for sustainable development.
- » To instill in our graduate's ethical values and empathy for the needs of society.

DEPARTMENT MISSION

- » To equip students with a strong foundation in the area of Computer Science and Engineering using effective teaching-learning practices.
- » To provide state-of-the-art infrastructure to suit academic, industry and research needs at the global level.
- » To engage students and faculty in interdisciplinary research that promotes innovative ideas for sustainable development.
- » To incorporate skill enhancement programmes for students and faculty to cope with the contemporary developments in technology.
- » To inculcate effective communication skills, professional ethics and social commitment among professionals through value added programs.

PROGRAM EDUCATIONAL OBJECTIVES (PEO)

Graduates of Computer Science & Engineering will

1. Evolve as globally competent computer professionals, researchers and entrepreneurs possessing collaborative and leadership skills, for developing innovative solutions in multidisciplinary domains.
2. Excel as socially committed computer engineers having mutual respect, effective communication skills, high ethical values and empathy for the needs of society.
3. Involve in lifelong learning to foster the sustainable development in the emerging areas of technology.

PROGRAM SPECIFIC OUTCOMES (PSO)

Students of the Computer Science and Engineering program will:

PS01: Professional Skills: Attain the ability to design and develop hardware and software based systems, evaluate and recognize potential risks and provide creative solutions.

PS02: Successful Career and Entrepreneurship: Gain knowledge in diverse areas of Computer Science and experience an environment conducive in cultivating skills for successful career, entrepreneurship and higher studies.

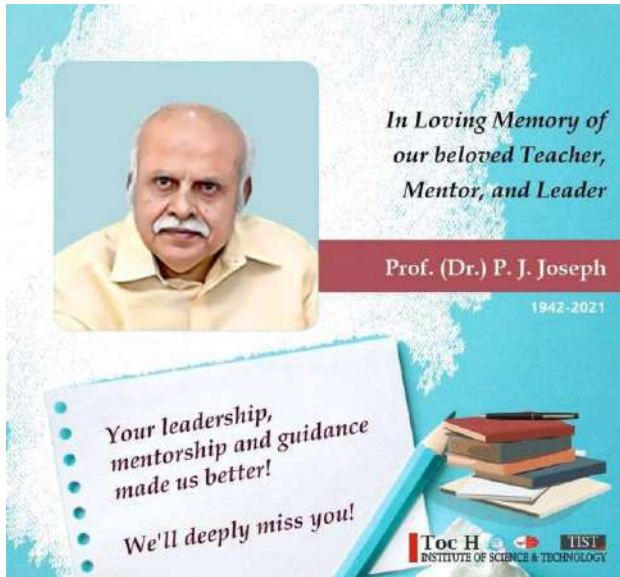
PROGRAM OUTCOMES (PO)

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. 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.
11. 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.
12. 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.



FOND REMEMBRANCE....

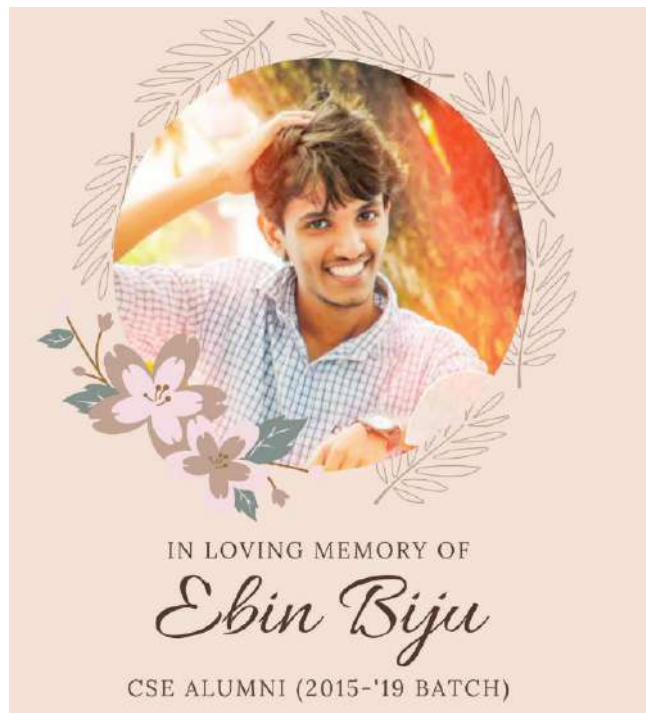
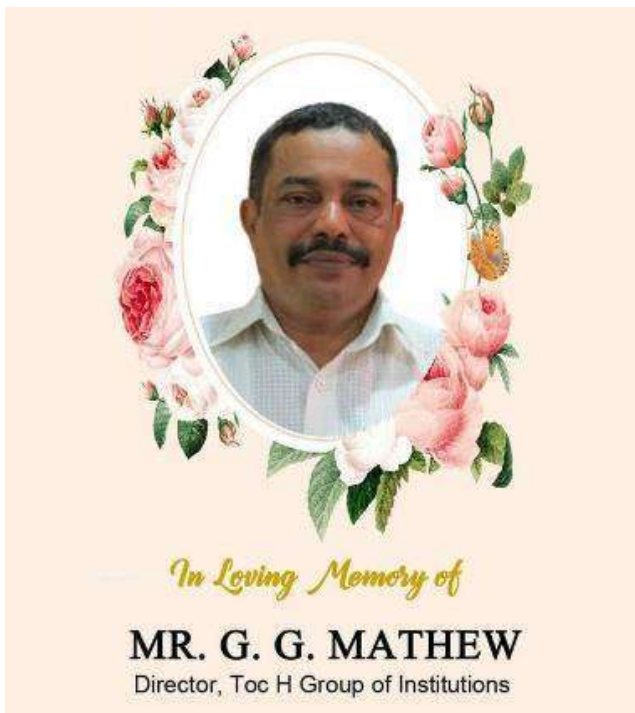


Prof. (Dr.) P. J. Joseph, our mentor, and leader departed from us on 14.07.2021. He was the Director of Toc H Public School Society, Kochi. He also served as the President and an active director board member, constantly guiding us to choose the right path.

He was the Head of the Post Graduate & Research Department of English, Union Christian College, Alwaye, and a Member of the Board of Studies of the MG University. He had served in various capacities as the Member of the State Level Academic Core Group for the Total Literacy Project of Kerala, Vice President of the Association for Environmental Protection, the Secretary of the Ernakulam District Committee & Member of the National Council of Indian Adult Education Association, the Project Director & Member of the Executive of Various Environmental Protection Programs and one of the Founder Members of the Commonwealth Association for the Education & Training of Adults. He was actively involved in the slum rehabilitation program in Alwaye. He had been elected the Vice President of the Kerala Chapter of the Confederation of NGOs of Rural India (CNRI). The Kingston University School of Education, U.K. conferred on Prof. (Dr.) P. J. Joseph, the 'International Visiting Fellowship' in 2007. He had represented the country at various international conferences and presented papers. He had published a few books including three Travelogues in Malayalam. His articles have been published in various national and international journals and publications. He also officiated as the President of the Indian School Psychology Association.

We will cherish all memories of him forever.

Prof. Dr. P J Joseph sir, Director Toc H Group of Institutions, who left us on 14.07.2021



DEPARTMENT PROFILE



The Department of Computer Science and Engineering, since its inception in **2002**, imparts quality education in the field of **Computer Science and Engineering**. Since 2009, the Department started offering PG program, **M.Tech in Data Security**. In 2020-'21, an additional intake of 60 seats in B.Tech got sanctioned, thereby increasing the total seats as **120**. For equipping students with the must have *Industry 4.0 skillset for the 21st century*, the Department introduced a new PG course - **M.Tech in Data Science** in 2020, which is one of the most sought after courses globally. This program would enable learners to be adept in a wide array of skills such as mathematical modeling, data preparation, ML, AI and data analytics.

Students/ Staff Strength:

No of Students:	B.Tech - 380	M.Tech - 11	Total - 391
No. of Faculty:	20	Technical Staff:	7

GLORIOUS ACHIEVEMENTS

**Ayda Sara Shaji****CGPA : 9.81****Anagha Sreekumar****CGPA : 9.43**

Awarded among the **University Level Top 2%**
of all the successful candidates in B.Tech CSE (2018-'22 Batch)



APJ Abdul Kalam Technological University

UNIVERSITY
TOP SCORERS
APJ KTU

(B.Tech 2018-'22 Batch)

AYDA SARA SHAJI
CGPA 9.81**ANAGHA SREEKUMAR**
CGPA 9.43



Congratulations!

*Sanctioned AICTE Grant in Aid for Project
under Research Promotion Scheme (RPS)*

**"Traffic Incident Detection and Evidence Management
from CCTV Surveillance Footage using
Deep learning and Blockchain"**

Principal Investigator



Dr. Sreela Sreedhar
Associate Professor & HOD, CSE

Co-Principal Investigator



Mr. Abin Oommen Philip
Asst. Professor, CSE

AICTE FUNDED PROJECT 2021-'22

Toc H is proud to have the AICTE funding sanctioned for the project, **"Traffic Incident Detection and Evidence Management from CCTV Surveillance Footage using Deep Learning and Blockchain"**, under Research Promotion Scheme (RPS) during 2021-'22. Dr. Sreela Sreedhar, HOD- CSE, is the Principal Investigator and Mr. Abin Oommen Philip, Assistant Professor, CSE is the Co-Principal Investigator for the project.

FINALISTS - CSI INAPP INTERNATIONAL STUDENT PROJECT AWARDS 2022

Congratulations !!

Team 'We Speak'

FINALISTS

11th CSI InApp International Student Project Awards 2022

Selected among the Top 13 teams from 700+ Projects, with over 3000 participants

Team Members



ANAGHA SREEKUMAR



ANAKHA S LEKSHMI



NAJIA NAZIR



SWATHY T NAIR



ASST.PROF. SHERINE
SEBASTIAN

Mentor

Project Title: **'We Speak' - A Malayalam Sign Language Detection and
Speech Conversion System for the Hearing Impaired**



Computer Society of India
Thiruvananthapuram Chapter
**CSI-InApp
INTERNATIONAL STUDENT
PROJECT AWARDS, 2022**

Final Year Project titled, **'We Speak'** got selected to the finals of the 11th edition of **CSI InApp International Student Project Awards 2021**. The team got selected among the **top 13 from the 700+ Projects** submitted with over 2000 participants from all over the world, and won cash prizes and certificates.

B.Tech Honors Degree Holders

**APJ Abdul Kalam Technological University
CSE (2018 - '22 batch)**



ANAGHA SREEKUMAR
CGPA: 9.43



AYDA SARA SHAJI
CGPA: 9.81



AISWARYA RAJ
CGPA: 8.96



SWATHY T. NAIR
CGPA: 8.47



THUSHAR KIRAN S D
CGPA: 8.19



ARJUN T JINEN
CGPA: 8.03

B.TECH COMPUTER SCIENCE AND ENGINEERING: HONOURS DEGREE

6 students from the Department of Computer Science and Engineering, out of their hard work and efforts, secured **B.Tech CSE with Honours** degree.

B. Tech (Hons.) program incorporates advanced subjects in the engineering specialization, research, interdisciplinary studies, etc. and is offered by KTU colleges having NBA accredited UG programs.



ACADEMICS & PLACEMENTS

UNIVERSITY RESULTS

B.Tech CSE – TOPPERS (2017-'21 batch)



Ayda Sara Shaji
CGPA **9.81**



Anagha Sreekumar
CGPA **9.43**

M.Tech Data Science – TOPPERS 2020-'22



Manju M K
CGPA **9.79**



Abhirami Ajith
CGPA **9.35**

B.TECH : (2018-'22 batch): 75% pass in the B. Tech Degree Examination, June 2022.

M.TECH : (2020-'22 batch): 100% pass in the M. Tech Degree Examination, June 2022.

Semester-wise Results:

Year of Adm.	Semester	No. of Students Appeared	No. of Students Passed	Pass Percentage
2018	S8	57	49	86 %
	S7	57	51	89 %
2019	S5	63	56	89 %
	S4	63	56	89 %
2020	S3	92	68	73 %
	S2	92	69	75 %
2021	S1	97	69	71 %

PLACEMENTS

- » **90%** of the eligible students of B.Tech 2018-'22 batch got placed in various reputed companies like Infosys, TCS, Cognizant, H&R Block, IBS Software, UST Global, Amazon, Wipro, Byju's, Buck, UVJ Technologies, Quest, Speridian, Travancore Analytics, Quest Global, Experion etc. The students secured multiple offers, with a total count of 115 offers.
- » **67%** of students in current B.Tech 2019-'23 batch got placed in various reputed companies, with **80+ offers** so far.



MOUS SIGNED WITH FRESTON ANALYTICS & LOGIXSPACE TECHNOLOGIES

5

LAURELS

FACULTY



GOOGLE DSC LEAD



CAMPUS COMMUNITY LEADS @ TINKERHUB FOUNDATION



ASAP – ADDITIONAL SKILL DEVELOPMENT CENTRE (ASDC) & COURSES



Toc H is listed as an ASDC of ASAP (Additional Skill Acquisition Programme), an MHRD and Govt. of Kerala Initiative to offer futuristic certification courses in AI and ML and other new generation courses by Google, Amazon, IBM etc. for addressing the skill gap of engineering students. ASAP Consultancy for training has generated an **income of Rs. 4,11,440** so far.

Congratulations to the 3rd Batch of students on completing **Google Cloud ACE Program** in November 2021 through Toc H ASDC, coordinated by the Department of Computer Science and Engineering.



LAURELS – STUDENTS

Second Prize – HACKATHON 2021 in Future Technologies presented by Toc H IEDC

Emmanuel P Saji, G Ananthkrishnan, Janaki Sindhu Nair, Lakshmi Sathyakumar and Nigin N Manayil (2019-'23) secured second in the 'Hackathon 2021' in Future Technologies organised by IIC, CSE and IEDC Toc H, in association with Kerala Startup Mission & Innovator's Premier League, in December 2021. The project proposed is the development of a Healthcare Android Application, with a focus on maintaining a simple user interface, considering the key demographics such as the ageing population and people with disabilities.



IEEE | Toc H | SECOND PRIZE WINNERS OF TECHNOZERRE



Second Prize in Project Expo "Technozerre" by IEEE SB

Team Technoloop - **Akhil P S, Arjun P S and Pranav Krishna** of CSE 2021-'25 batch secured second prize in the Technozere Project Expo in Aurora '21 conducted by IEEE SB Toc H.

First Prize in IDEATHON Competition

Arjun S and Tejus K (2019-'23 batch) secured First prize in the

Ideathon 2021, conducted by Toc H IIC & IEDC on 19 November 2021. *Problem statement- Life Assistance Device for Visually Impaired.*

Second Prize in Idea Pitching & Speak Out Competition

Praisy Maria Joseph (2020-'24) secured second in the 'Elevator Pitch' – Idea Pitching Competition and 'Speak Out' competition held as a part of WiEcompete, the WiE Week Celebrations organised by the IEEE WIE AGs of IEEE SB Toc H, IEEE SB MESCE, IEEE SB NSSCE, and IEEE SB MCE CKL in June 2022.

Winners – Essay Writing Competition

Malavika Narayanan of the 2021-'25 batch secured first, Karthika R and Simran Naseer of the 2020-'24 batch secured second and third prize respectively in the Essay Writing Competition conducted by the IEEE SB Toc H, in association with IEEE PES SB Toc H in the Exousia 1.0 event as part of PES Day celebration in April 2022.

Winner – Crossword Competition

Simran Naseer of the 2020-'24 batch secured first prize in the Crossword Competition conducted by the IEEE Student Branch Toc H, in association with IEEE PES SB Toc H in the Exousia 1.0 event as part of PES Day celebration in April 2022.

Winners – Poster Design Competition

Mary Tresa Merin of 2020-'24 batch and **Anjana Anil** of 2019-'23 batch secured first and second prize respectively in the Poster Design Competition conducted by the Dept. of Civil Engineering, TIST as part of 'Engineers Day 2021' celebration in September 2021.

Winner – Article Writing Competition

Anjana Anil of the 2019-'23 batch won second prize in the Article Writing contest conducted by the IEEE PES SB, Toc H in August 2021.

Winners-Group Discussion

Praisy Maria Joseph and Hemant Prakash of the CSE 2020-'24 batch won the first and second prize in the Group Discussion competition conducted by the IEEE Student Branch, TIST in August 2021.

Winner – Photography: **Jonas Civi** secured first prize in the Photography competition conducted as part of **REX 2.0, IEEE RAS SBC RIT** in association with IEEE RAS Kerala Chapter, in Nov 2021.

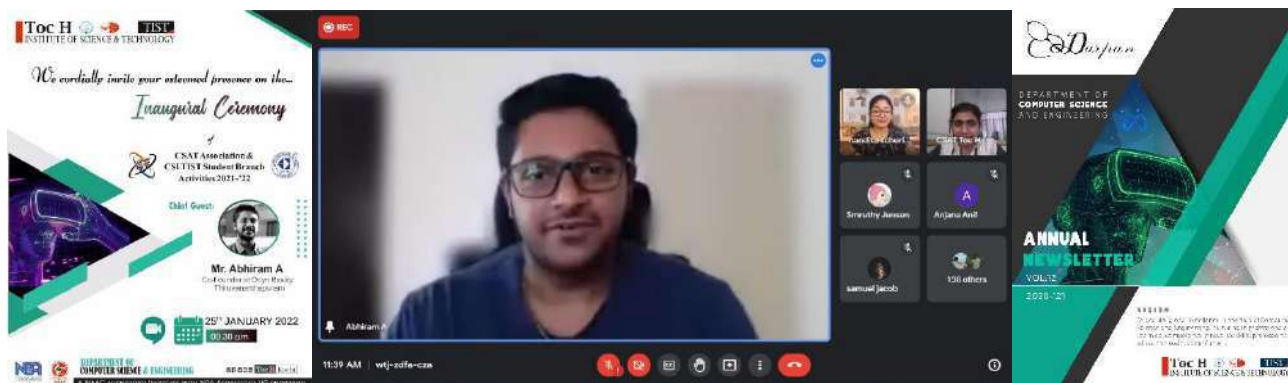




ANNUAL REPORT 2020-'21

CSAT & CSI STUDENT BRANCH ACTIVITIES

INAUGURATION OF CSAT & CSI ACTIVITIES 2021-'22:



The inauguration of activities of **CSI Student Branch** and **CSAT** – Computer Science and Engineering Student's Association of Toc H Institute of Science & Technology for the academic year 2021-'22 was held online through google meet on 25th January 2022 by **Mr. ABHIRAM A, Co-Founder at Odyn Reality, Thiruvananthapuram**. The function was presided over by Dr. Alex Mathew, President, Toc H Public School Society. Ms. Janet S, Secretary, CSI TIST SB delivered the welcome speech. The report of CSI & CSAT activities for the academic year 2020-'21 was presented by Dr. Sreela Sreedhar, HOD, CSE. Mr. Abhiram inaugurated the event and delivered the inaugural address. Mr. K K Mathew, Treasurer, Toc H Public School Society and Prof. Dr. Preethi Thekkath, Principal, TIST felicitated the audience. Then, the CSAT and CSI office bearers were introduced during the meeting. The function was attended by the HODs of various departments of TIST, and all the staff and students of CSE Department. Mr. S Sidharth, Secretary, CSAT, proposed the vote of thanks. Annual Newsletter '**Darpan 2021**' was released by **Dr. K Varghese, Founder Director & Manager, Toc H Public School Society**.

NATIONAL LEVEL TECH FEST – TECHFOSS 2022 [15, 16 JULY 2022]



The Department of CSE, in association with the Computer Society of India (CSI), & International Centre for Free and Open Source Software (ICFOSS) Cell, IIC and IEDC, organized a National Level Intercollegiate Technical Fest 'TECH FOSS 2022' on 15th and 16th July 2022. This was the ninth event in the TechFOSS series, which was intended to reconnect the students after the pandemic lock down and to unfold new learnings.

Mr. B Karthik Parasuram, Project Director, Kerala Startup Mission Fablab inaugurated the Fest on 15th July 2022.

The **Industry-Institute Interaction Agreement** was initiated with **Mr. Anish S Nair, Co-Founder & CEO, Logix Space Technologies**, during the inauguration ceremony.

The event was sponsored by **Freston Analytics** and **LogixSpace Technologies – Link Ur Codes**.





TECHFOSS EVENT DETAILS

Major Events:

1. **Chalo India Start Up Drive 2022 by Avodha**
2. **Hackathons** - UI/UX Design Hackathon and TECHATHON (Technical Hackathon)
3. **Workshops:** Python Django workshop
4. **Technical Competitions:** Capture the Flag – Coding Competition, Digital Art
5. **Non-Tech Competitions:** Treasure Hunt, JAM , Videography
6. **School Events:** Idea Pitching, Science Quiz, UI/UX Bootcamp
7. **Esports:** Valorant



1. CHALO INDIA 2022: The Chalo India Start Up drive was held in association with AVODHA as part of TECH FOSS 2022. **12 Teams (40 members)** from different colleges participated in the event. The selected winners were announced after the second-round evaluation. The winners are offered a financial support of Rs 1,00,000 to take their idea to the next level.

2. HACKATHONS: Two hackathons were organized. A **UI/UX hackathon** was aimed in letting the participants compete with innovative UI/UX designs. **Techathon** was aimed in evaluating the innovative applications put forth by the participants. 7 and 10 teams participated in the hackathons respectively. The winners were awarded with prize money of 5K and 10K each and certificates.



3. PYTHON DJANGO WORKSHOP: 2 days hands on workshop was organised during TechFoss. The sessions were handled by Mr. Shaun E Rajeev, Full Stack Developer, and Mr. Devaprasad N M, Backend Developer. 76 students participated and got benefitted from the workshop.



4. TECHNICAL COMPETITIONS: Capture the Flag – Coding Competition, Digital Art





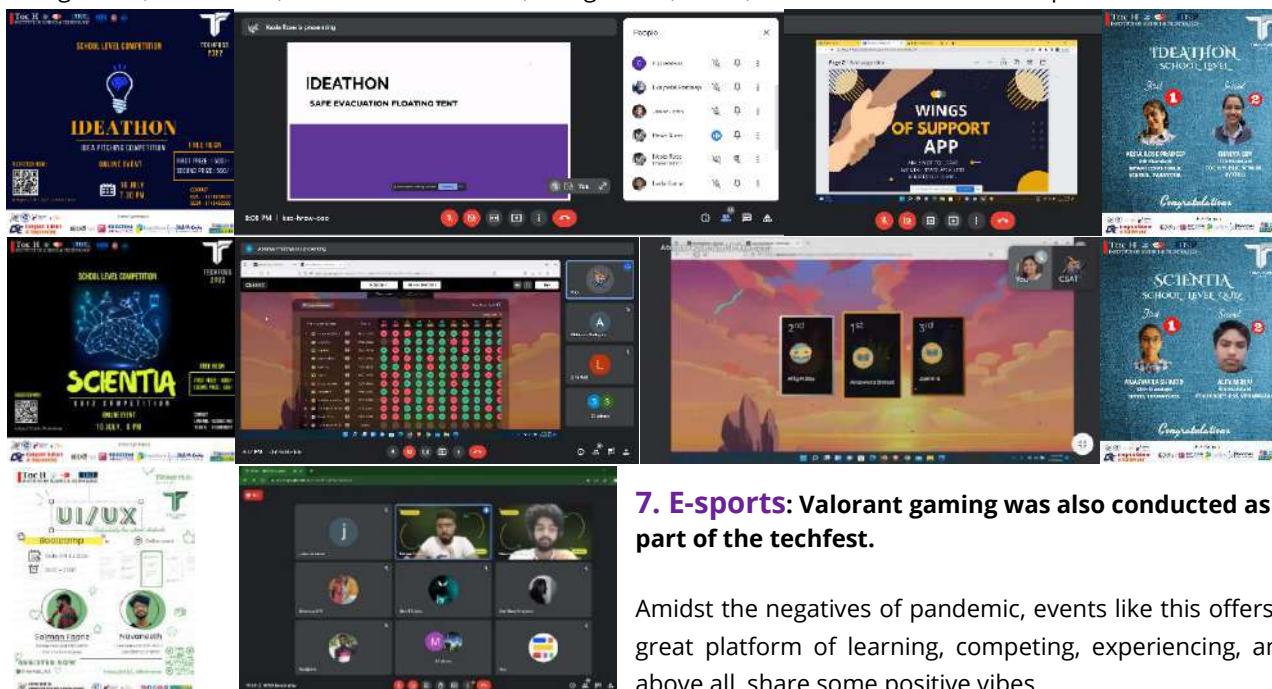
5. Non-Tech Competitions: Treasure Hunt, JAM , Videography



6. School Events: Idea Pitching, Science Quiz, UI/UX Bootcamp

TechFOSS hosted three events for the school students – Idea Pitching, Science Quiz and UI/UX workshop. Participants from across different schools attended the events. Anaswara Shinod from TDHSS, Thuravur and Alfy M Biju from St. George's HSS, Vennikkulam were the quiz winners. The winners were awarded with prize money and certificates.

UI/UX bootcamp was conducted online in evening sessions and the students actively participated in the workshop. They were finally given hands on assignments also. Salman Faariz, UI/UX Designer, Centrric Visual Designer, Tatos Management, Lead GDSC, and Navaneeth Venu, Design Lead, GDSC, MBCET were the resource persons for the camp.



7. E-sports: Valorant gaming was also conducted as part of the techfest.

Amidst the negatives of pandemic, events like this offers a great platform of learning, competing, experiencing, and above all, share some positive vibes.

HACKATHON IN FUTURE TECHNOLOGIES [04.12.2021 - 08.12.2021]



A 120 Hrs 'Hackathon in Future Technologies' (120 Hrs – 5 days) was organized by the department along with Toc H IEDC and IIC. This was held as part of Kerala Startup Mission's prestigious innovators premier league (IPL).

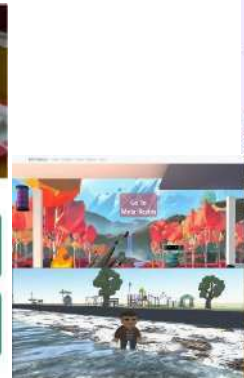
The hackathon was inaugurated by Mr. Arun Alex, Coordinator, Industry Attachment Cell, APJKTU on 4th December. The key areas in which solutions were invited are – Agriculture, Smart Life, Human-Centered Computing, Smart City, Disaster Management, and Health Care. The event was conducted in Hybrid (Blended Mode).

More than 25 teams participated in the event. The winners were awarded with certificates and cash prize.



PROJECT EXPO - CAPSTONE 2022 [24.06.2022]

An expo of the academic projects developed by the final year B.Tech students were organized on 24th June. The junior students as well as the students from the other departments were given a walkthrough of the projects displayed as part of Capstone 22' Project Expo. The expo displayed convergence of latest technologies in solving real world problems with social impact. 15 teams participated in the expo.





FACULTY DEVELOPMENT PROGRAM: KTU SPONSORED FDP ON DATA SCIENCE FOR THE NEXT DECADE [05-09 JULY 2021]



A KTU Sponsored five-day FDP on “DATA SCIENCE FOR THE NEXT DECADE” was organized by the Department of CSE from 05.07.2021 to 09.07.2021. Dr. Ramadoss Balakrishnan, Professor (HAG), Department of Computer Applications, National Institute of technology, Tiruchirappalli inaugurated the FDP and delivered the inaugural address specifying the importance of learning Data Science in the current big data era.

The resource persons for the FDP were: Dr Ramdoss Balakrishnan, NIT, Tiruchirappalli, Dr Ebin Deni Raj, Assistant Professor, ACM Distinguished Speaker in Data Science, IIIT Kottayam, Mr. ParthaSarathi Chakraborty, Consultant Data Scientist, Verizon, Mr

Sunil Raveendran, Associate Director, Blockchain and Innovation, Mr Thomas John, Practice Lead-IoT, Dr Vinod P, Professor, Department of Computer Applications, CUSAT, Dr Judy MV, Professor, Department of Computer Applications, CUSAT, Kochi, Mr Vijaya Krishna Menon, Data Architect, Gadgeon Systems Inc, Dr K Satheesh Kumar, Associate Professor and HOD, Department of Future Studies, University of Kerala.

The FDP covered the highly relevant areas in data science like design patterns in machine learning, AI-based workforce scheduling, the research trends in data science, blockchain-based trusted data sharing, image data analytics, malware analysis using visual features, big data stream analytics using spark, data-driven problem solving, time series modelling and forecasting etc. Some demo sessions were organized as well to perceive a hands-on view of the technologies discussed. Around 50 participants from various academic institutions attended the sessions.



ALUMNI MEET (2017-'21 BATCH) – SMRITHIPADHANGAL '22



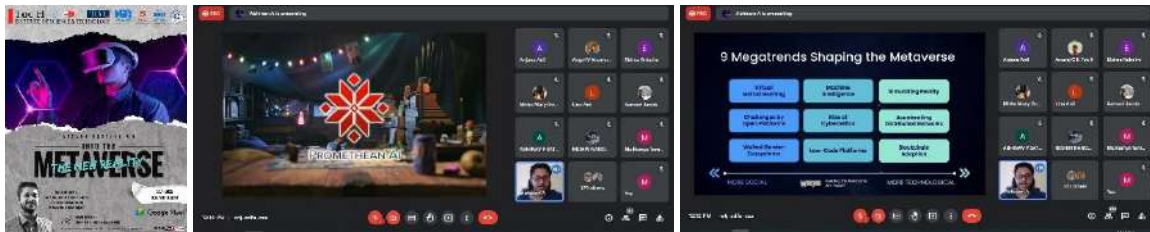
Department of CSE organized Alumni Meet for the students of 2017-'21 batch on 22nd April 2022 at TIST campus. As the classes of this batch were concluded online during Covid, they missed the opportunity for offline interactions in the campus. This meet gifted happy moments for them to revive the missed campus life and could create memories to cherish. All enjoyed a nice time together, recollecting the moments spent together in this campus, rebuilding the bonding with the institution. Dr. Sreela Sreedhar (HOD-CSE) and other faculty members addressed the alumni. All were very happy to share their memories and enjoyed the fun games organized. Finally, a great day ended with yet another set of memories which will last for a lifetime.





EXPERT SESSIONS

'Into the Metaverse-the new reality' by Mr. Abhiram A, Co-Founder at Odyn Reality.



An expert session on 'Into the Metaverse-the new reality' by Mr. Abhiram A, Odyn Reality, Thiruvananthapuram, was organized for all the CSE students on 25.01.2022, as part of the CSAT inauguration session. The speaker elaborated on what is meant by the metaverse, how the metaverse will be accessed, and why it requires ambitious, agile regulation.

'Understanding human mobility dynamics' by Prof. Dr. Ronaldo Menezes, HO-CSE, University of Exeter, UK



An expert session on 'Understanding human mobility dynamics' was handled by Prof. Dr. Ronaldo Menezes, HO-CSE, University of Exeter, UK on 28.04.2022. Understanding human mobility is crucial for a broad range of applications from disease prediction to communication networks. It is also crucial in understanding the involuntary internal and cross-border displacement of populations, voluntary internal and cross-border migration and planned and consented relocation. Most efforts on studying human mobility have so far used private and low resolution data, such as call data records. Dr. Ronaldo explained the details on different mechanisms.



'Deep Learning for Intelligent Video Analytics' by Ms. Sreeja M U, Post Doctorate Research Fellow, CUSAT

A hands-on interactive expert session on 'Deep Learning for Intelligent Video Analytics' was handled by Ms. Sreeja M U, Post Doctorate Fellow, CUSAT on 16.06.2022. The session gave a detailed demo of the Video Analytics process and the use of Deep Learning methods. The students could experiment with the processes and their doubts were clarified during the live session.



'Materialising Ideas to Products' by Mr. Jerin A Mathews, Founder-Rectify, Software Engineer-zoominfo



An expert session on 'Materialising Ideas to Products' was handled by Mr. Jerin A Mathews,, Founder-Rectify, Software Engineer-zoominfo on 28.06.2022. The speaker is an entrepreneur since is engineering days and hence shared a detailed session of how the budding entrepreneurs can move further by improving upon their initial ideas.



SHORT TERM TRAINING PROGRAMS

Training on 'Introduction to UI//UX



Short Term Training on 'Introduction to UI//UX by Mr. Salman Fariz, Management Lead GDSE, UI/UX Designer Centrric, and Mr. Navneet Venu, Design Lead. MBCET was handled from 19.09.2021 to 25.09.2021. TinkerHub TIST Cochin along with IEEE TIST SB has conducted this one week-long Boot-camp on UI/UX design. More than 150 participants were part of this training program. The session started with the introduction to designing and further covered UI/UX basics, animation in Figma, prototyping and navigation. Finally, the participants had to do a design project based on their learning and had to upload the same in GIT. The best projects were awarded.

Web Development Bootcamp

Web Development Bootcamp, led by Ninjin Nazar, Web Developer, Campuzon, was held from 28.01.2022 to 30.12.2022, in association with TinkerHub, Kochi. The session covered the basics of web development and outlined the advanced concepts.



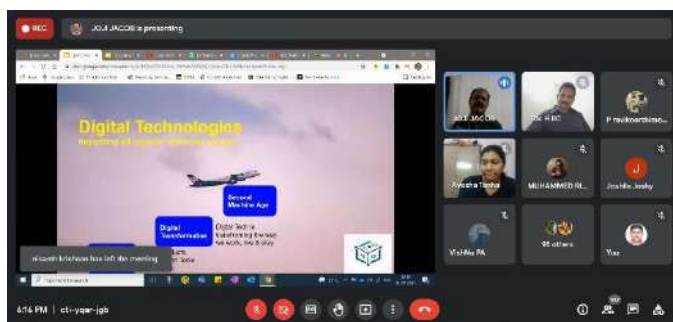
Training on 'Web Development'

As part of the MoU with Linways Technologies, a mini IT company set up is visualized to be engaged in the campus. The initial sessions on 'Web Development' by Anish S Nair, Logix Space Technologies (commencement of training) were handled on 10.06.2022 and 22.06.2022. The training program will continue in the due course.



TECHNICAL SESSIONS/WORKSHOPS

Session on 'LEAN STARTUP- Minimum Viability Product Based on Second Machine Age' by Mr. Joji Jacob (Mentor of Change- ATAL Innovation Mission) (03.07.2021)



IIC and IEDC-TIST in association with Departments of ECE < CSE & IT organised an online Session on lean start ups. The session was well received and covered in detail the key characteristics of a minimum viability product (MVP). The participants got an idea on how to create a future product with an aim to receive feedback on the implemented idea, as well as to make quick relevant adjustments. The session also provided an insight on how to move on to another learning cycle as soon as the idea is validated with the help of a minimum viable product. The session which was conducted in google meet was attended by more than 100 participants.



Technical Session on 'How Hackers gain access to your system through a Virus' by Mr Ragesh K Ramachandran, Diploma in Cyber Security and Forensics (04.09.2021)



Department of CSE, in association with Federal Academy for Cyber Education (FACE), an accredited training centre of C-DAC, and Computer Society of India (CSI) organised an online Session on "How Hackers gain access to your system through a Virus" by Mr Ragesh K Ramachandran, Diploma in Cyber Security and Forensics. The session provided an insight into the key ways in which hackers intrude your system. The participants got an idea on how hackers log into bank accounts, carry out transactions, sending malicious emails to contacts, etc in order to spread malware and spyware. The session which was conducted in google meet was attended by more than 70 participants.

One day workshop "GitHub & Azure - Code to Cloud" by Mr. Dhiraj Gyani, Director, GitHub Education as part of GITHUB Campus Initiative (20.11.2021)



Department of CSE, as part of its GITHUB Campus Initiative, organized a one day workshop "GitHub & Azure - Code to Cloud" by Mr. Dhiraj Gyani. The session gave an exposure on how to begin their technical journey with GIT. The workshop enables students to use GIT as a version control tool to plan smarter, track work, and prevent vulnerabilities. The students could get an overview of How to deploy faster with native Azure integrations and GitHub extensions, How to automate code-to-cloud workflows and accelerate software development.

Internship & Industry Readiness Program on Data Analytics & Machine Learning by Mr. Manoj Trivikraman, Founder and CEO, ArtLumen (02.12.2021)

A webinar on Internship & Industry Readiness Program on Data Analytics & Machine Learning was conducted for S5 CSE students was well received and the participants were enlightened about the importance of data analytics and machine learning in the current scenario. The session also provided an insight on how machine learning helps manufacturers to reduce process-driven losses, increase capacity by optimizing the production process, and reduce costs by guiding predictive maintenance. It provided necessary insights on how to deep dive into the enormous opportunities provided by Data Analytics in the current scenario.



"Hands On Training Session on Spark AR" by Mr. Akzar Khan and Ms. Yashwini Khyade as part of Facebook Spark AR initiative (11.12.2021)

A onlile hand on training session on Spark AR was conducted which gave an insight on how to create an AR effect on Spark AR. Every participant who creates an AR effect got branded merchandise from Spark AR and an opportunity to participate in the internship fair organized by Facebook Spark AR partner agencies.

GITHUB Code Innovation Session (18.12.2021, 2-6 pm)

As part of the GitHub Campus initiative, an introductory session on GITHUB to share an overview of how to use Actions to ease the development workflow. The session also outlined Web3 best practises, all about writing code and showcasing a case study to explain the concepts. The session as handled by Mr. Madhavan Majolan, CEO of Questbook.



Two-day Python Programming Camp and Hackathon, as part of Gender & Technology Program (GTP) by ICFOSS (03.03.2022, 04.03.2022)



A two day workshop cum Hackathon was conducted by ICFOSS was handled by ICFOSS resource persons Mr. Akhil P Rethnakaran and Ms. Sukanya Surajan (Co-Trainer) handled the python sessions. The training aimed to connect the students to free software initiatives and enable them to contribute to free software projects as well as developing their technical capabilities. These programs also provide opportunities for women to bring them to the mainstream, to network with the larger community of learning and to bring new professionals to society. The program helped to accomplish harnessing the women energy and to develop the leadership potential within the participants.



Technical session on "Cyber Security & Forencics" by Mr.Ragesh K Ramachandran, FACE (25.04.2022)

Department of CSE, in association with FACE & CDAC organized a session on "Cyber Security & Forencics", handled by cyber expert, Mr. Ragesh K Ramachandran. The session was attended by S4 CSE students and was beneficial for all those who aspired to make a career in the cyber security domain especially in banking, manufacturing, engineering, telecom, education, pharmaceuticals, retail traders, hospitals, finance, sales, marketing, legal, law enforcement department. It provided suitable information in recovering digital evidences from laptops, PCs etc.

A workshop on "Mastering the Product Development" by Mr. Ajin Omanakuttan, Technical Officer, StartUp Valley, AJCTE-TBI (28.05.2022)



A workshop on "Mastering the Product Development" is being organised by Toc H IEDC and IIC in association with CSE & ECE aided to clear and easy to follow route for developing a product. Product Development deals with the entire process in the creation of the product, from its inception as an idea to its release into the market. Managing your product development requires significant planning, beginning in the concept phase and the product roadmap.



Session on 'World of Start Ups - Challenges and Opportunities' by Mr. Eldhose P Sim, Innovation Ambassador, IIC, Toc H (16.06.2022)



The session served as a good start for anyone who aspire to start their own startup/business but are confused, to get the right advice and awareness, to ignite that fire in you. The session was organized in association with IIC and IEDC, TIST. The session gave valuable inputs that inspired the participants to venture into startup activities.





MOTIVATIONAL/AWARENESS SESSIONS

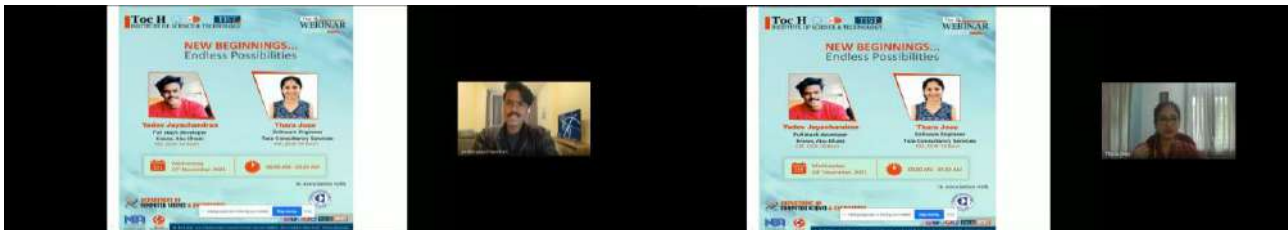


The virtual Mega Conclave on 'Opportunities for Freshers in Red Hat Technologies, Cloud and Automation' by Mr. Ramesh Padmanabhan, Director, RedHat GLS, and Dr. Mendus Jacob, CE, IPSR , in association with Red Hat, IPSR (05.11.2021)

The session briefed on the opportunities that the job seekers who wish to identify the technologies and career fields which are booming during this Covid19 pandemic. The session was useful for the ongoing Students and faculty members who want to utilise the benefits of Red Hat Academy.

Motivational Session on "New Beginnings, Endless possibilities" (24.11.2021)

The session was handled by TIST CSE Alumni Ms. Thara Jose (Software Engineer, TCS) and Mr. Yadev Jayachandran (Full Stack Developer, Krews, Abudabi) as part of the first year induction program. They shared their experiences and expertise as an inspiration to their prospective juniors.



Motivational Session on "Embarking on the Computer Science Journey." (24.11.2021)

As part of the orientation session for first year students, Mr. Anoop Alex Koshy, ME (IISc), Former Senior Project Manager, Infosys Technologies Limited & COO, NueTech Consultants shared his views on how to take the Computer Science Engineering study in the upcoming 4 years. He covered the topics like the issues to face when going back to classroom studies after covid break, introduction to Computer Science and Engineering, relevance in current scenario and the role of Engineers in the Society.



Awareness Session on OBE/Teaching Pedagogy by Ms. Saira Varghese, Asst. Professor, CSE) (24.11.2021)

The session which was organized as part of first year student induction program, gave an insight regarding the teaching pedagogy and the outcome-based education to the first year graduates.

Awareness Session on Universal Human Values by Dr. Jesna Anver, Asso. Professor, CSE (25.11.2021)

This session, which was organized as part for the first year induction program helped to impart the importance of inculcating the UHV practices in the workplace and in life.



Session on Strengthening mental well-being and Health' (28.02.2022)



Department of Computer Science and Engineering organized a session on "Strengthening Mental Well-being and Health" to the S5 students. The session was handled by Dr. Alexander Mathew, President, Toc H Public School. The session was efficacious on how an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to contribute to his or her community. The session was well received and provided an insight into the key ways through which life can be made stress free.



Awareness session on 'Introduction to Link Ur Codes-Linking ur dreams with code' by Mr. Anish Snair, CEO, Logix Space Technologies Ltd. (26.04.2022, 09.05.2022)

Department of CSE organized a session on 'Introduction to Link Ur Codes- Linking ur dreams with code' by Mr. Anish S Nair, Co-founder, Logix Space Technologies Pvt. Ltd. The students from various batches attended the session. The session emerged out to be very informative and motivational and the students got an idea on the relevance of studying various programming languages. The objective of the session was to train students in the area of software development in order to build scalable and flexible applications in an industry-standard way.



'Women in Tech' awareness session "Let's Talk" by Ms. Neha Susan Manoj, Community Manager - Fellow -TinkerHub Foundation (13.05.2022)

The session was handled by Ms. Neha Susan Manoj, Community Manager - Fellow - TinkerHub Foundation, and Anandhakrishnan V S, Campus Community Manager - Fellow - TinkerHub Foundation. The event started with an introduction to communities and the importance of joining a community. The session gave everyone knowledge on why they should join a community and be active in it. The session also gave a realization on making connections and networking through the TinkerHub community and about getting more opportunities like internships. At the end, there was an idea pitching session, and several members shared their ideas. The session was very lively, all the members actively participated.





SOCIAL OUTREACH PROGRAMS

“Snehagadha”: an awareness program on women safety” (16.07.2021)

“Snehagadha”: an awareness program on women safety’ was handled by Dr. Sreela Sreedhar, Associate Professor and Head of the Department of Computer Science and Engineering, TIST, organized by Kakkoor Public Library. The session discussed on the various ways in which women’s safety can be ensured and improved in the society as a whole with an overview on the various measures to be taken for empowering women and girls at the individual level.



“Let's learn: with the Children”



In the advent of reopening of schools amidst covid 19, CSE Dept., in association with the Public Library, Kakkoor, co-organized an awareness campaign for school children – “Let’s learn: with the Children”. Dr. Sreela Sreedhar (HOD, CSE) handled the session which aided to create a supportive and nurturing environment that helped students to focus on the positive things of being back to school. The campaign was organised with a vision for holistic advancement through friendship, to boost the confidence of school going children after a break. The session helped to impart confidence in the children to bring them together, at the same time created awareness about the importance of hygienic health practices too.



PLACEMENT TRAINING/HIGHER STUDIES

1. Placement oriented Pseudocode training by Abin Philip, Sreeja M S, Asst. Prof, CSE (01.10.2021)
2. Placement oriented Mock Interview Training by Mr. Sreehari N P, TCS and Thara Jose, TCS (CSE Alumni) (02.10.2021)
3. Orientation Session on 'Demystifying Higher Education' by Ms.Sahana m Sherif and Mr.Javeed Jaleel, Victoria 's Educational Services Pvt. Ltd. (Alumni) (01.12.2021)
4. GATE Awareness session, Rubix Academy (13.05.2022)
5. S7 Placement Training by Konfidence (17.06.2022 to 19.06.2022)





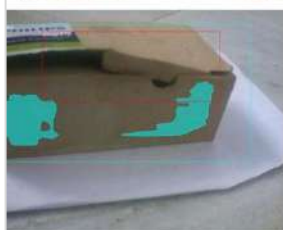
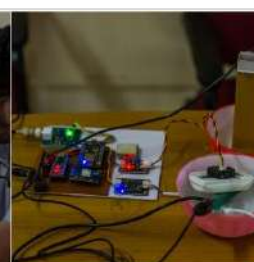
MOUS & INDUSTRY CONNECTS

The department holds MoUs with IT organizations and other institutes for imparting industry standard seminars, hands-on trainings & industrial visits.

1. Techno Lodge, Kakkoor, Piravom (The first rural IT park in Kerala) *renewed in 2021*
2. ICT Academy of Kerala (ICTAK)
3. RedHat India
4. Oracle Academy
5. VSB Technical Univ, Ostrava, Czech Republic
6. Additional Skill Acquisition Program (ASAP), Govt. of Kerala (*approved ASDC – Skill Development Centre*)
7. ICFOSS (International Centre for Free and Open Source Software)
8. KBA (Kerala Blockchain Academy)
9. Google Cloud Career Readiness Program
10. Federal Academy for Cyber Education (FACE)
11. GitHub Campus
12. UREKA Education, UK
13. LogixSpace Technologies
14. Freston Analytics Pvt. Ltd.

BEST PROJECTS (2018-'22)

Register Number	Project Team Members	Title of the Project	Project Supervisor(s)
TOC18CS005	ANAGHA SREEKUMAR	We Speak' - A Malayalam Sign Language Detection and Speech Conversion System for the Hearing Impaired	Ms. Sherine Sebastian
TOC18CS006	ANAKHA S LEKSHMI		
TOC18CS033	NAJIA NAZIRIN		
TOC18CS050	SWATHY T NAIR		
TOC18CS013	ATHUL REGI	Sustainable Supply Chain Management using Ethereum and Machine Learning	Ms. Mithu Mary George
TOC18CS015	BALAGOPAL S		
TOC18CS042	ROHAN JOSE		
TOC18CS049	S SIDHARTH		
TOC18CS002	AISWARYA RAJ	Water Quality Monitoring with Visualisation Dashboard	Ms. Saira Varghese
TOC18CS011	ASHWITH S PAI		
TOC18CS021	EMLIN DAVID SHAJU		
TOC18CS043	SANGEETH SURESH		





INDUSTRIAL VISITS

Interaction between industry and academia is essential for the students to get exposed to technology beyond the syllabus.

Industrial Visit to Technovalley Software India Pvt. Ltd., Kochi

The 8th semester CSE students (2018-'22 Batch) visited Technovalley Software India Private Limited, Kochi on 26th March 2022 as part of their industry interaction program. The students were given exposure to real-world industry applications and challenges in the field of Cyber Security and Cloud Computing through presentation and interaction sessions.



Industrial Visit to Verdant IT Solutions, Kochi

The 6th semester CSE students (2019-'23 Batch) visited Verdant IT Solutions, Kochi on 20 May 2022. Mr. Sunil Vishwanathan, CEO, helped to acquaint the students with the knowledge on latest trends and technologies in software development.

Industrial Visit to Makers Village as part of Makers Fest



Department of CSE organized an industrial visit to **Makers Village** to attend Makers Fest on **28th May 2022** for S2 students. 93 students and two faculties took part in the visit. The students had exposure to project expo, technology talks and Quiz competition. They also got the opportunity to interact with many startup owners and researchers.

A visit to Kerala Innovation Week, India's largest Design, Technology & Maker Fest



It was indeed a great day that complemented the technical exposure and industry interaction of our S4 CSE (2020 adm.) students to visit the Kerala Innovation Week at Kerala Technology Innovation Zone, Kochi on 28 May 2022.

They could attend the CREATORS' SUMMIT, presented by Kerala Start Up Mission (KSUM) along with Global Shapers Kochi, which offered a great platform for all to catch up, create and learn from the best.





PUBLICATIONS: 2021-2022

Publication by Faculty

- Sreeja M U published a paper titled "Enhanced Block-Based Feature Agglomeration Clustering for Video Summarization." In the Wiley Machine Learning Algorithms and Applications (Aug 2021): Chapter 7, 117-140.
- Abin Oommen Philip published the paper "Blockchain-based Framework for Investigating Pedestrian and Cyclist Hit and Run Cases on the Internet of Vehicles Era," 2021 Fifth International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), 2021, pp. 110-118, DOI: 10.1109/I-SMAC52330.2021.9640891. IEEE Xplore.
- Leda Kamal published the article "Blockchain: A Compendium on Contemporary Privacy Preservation Approaches and Its Manifestation in Varied Realms." in Lecture Notes in Networks and Systems book series (LNNS, volume 420), HIS 2021: Hybrid Intelligent Systems pp 517-529 DOI-https://doi.org/10.1007/978-3-030-96305-7_48, ISBN-978-3-030-96305-7.
- Mithu Mary George and Dr Rasmi P S published the paper "Performance Comparison of Apache Hadoop and Apache Spark for COVID-19 Data Sets", 2022 Fourth International Conference on Smart Systems and Inventive Technology (ICSSIT 2022), Page(s):1659 – 1665, doi:10.1109/ICSSIT53264.2022.9716232. IEEE Xplore
- Anuraj C K published the paper "Identification of drowning victims in freshwater bodies using drift prediction and image processing based on deep learning", 2021 International Conference on Advances in Computing and Communications (ICACC), 21-23 Oct. 2021, IEEE Xplore: 15 February 2022, DOI: 10.1109/ICACC-202152719.2021.9708245.
- Sajith P. J. published the paper "Intrusion Detection System using Deep Belief Network & Particle Swarm Optimization." Wireless Personal Communications (2022): 1-19, March 2022, <https://doi.org/10.1007/s11277-022-09609-x>
- Sajith P. J. published the paper "Network intrusion detection system using ANFIS classifier." Soft Computing (2022): 1-10., March 2022, <https://doi.org/10.1007/s00500-022-06854-x>
- Abin Oommen Philip published the paper "Study on Incident Detection and Management of Vehicular OBD Data on Blockchain", 2022 6th International Conference on Computing Methodologies and Communication (ICCMC), IEEE Xplore: 13 April 2022, DOI: 10.1109/ICCMC53470.2022.9753950
- Saira Varghese published the paper "Securing utility computing using enhanced elliptic curve cryptography and attribute-based access control policy" in the International Journal of Grid and Utility Computing, ISSN online 1741-8488, ISSN print 1741-847X (in press)

Publication by Student

- Sreejith J Kumar, Abin Oommen Philip published a paper titled "Achieving Market Segmentation from B2B Insurance Client Data Using RFM & K-Means Algorithm" in IEEE Xplore (Scopus Indexed), March 2022, DOI: 10.1109/SPICES52834.2022.9774051
Conference: IEEE International Conference on 'Signal Processing, Informatics, Communication and Energy Systems (SPICES)'
- Anjana Unnikrishnan; A T Roshni; P R Anusha; Anju M Vinny; published paper "Identification of Drowning Victims in Freshwater Bodies using Drift Prediction and Image Processing based on Deep Learning", 2021 International Conference on Advances in Computing and Communications (ICACC), 21-23 Oct. 2021, IEEE Xplore: 15 February 2022, DOI: 10.1109/ICACC-202152719.2021.9708245
- I P Raghesh Kumar; Rithin Varghese; Nandu Nagesh; Vyshnav Sasidharan published paper "Study on Incident Detection and Management of Vehicular OBD Data on Blockchain", 2022 6th International Conference on Computing Methodologies and Communication (ICCMC), IEEE Xplore: 13 April 2022, DOI: 10.1109/ICCMC53470.2022.9753950



QUALITY IMPROVEMENT PROGRAMS

FACULTY - INTERNAL

- » All faculty from CSE department attended the KTU sponsored five-day FDP on “DATA SCIENCE FOR THE NEXT DECADE” organized by the Department of CSE from 05.07.2021 to 09.07.2021.

Technical Forum



A technical forum discussion was conducted with Mr. Anish S Nair, Co-Founder & CEO, Logix Space Technologies, on 10 November 2021 for strengthening the industry-academia interaction. Dr.Sreela Sreedhar (HOD), Asst. Prof. Saira Varghese, Asst. Prof. Anuraj C K and Asst. Prof. Eldhose P Sim attended the session and discussed the latest technological skills which are of current demand in the IT industry. The team also discussed the possibilities of industry-oriented training for the students to equip them with job-ready skillsets.

FACULTY – EXTERNAL

Faculty name	FDP Name	No.of Days	Date	Institution/Industry Name and Address
Mr. Anuraj C.K	Innovation Ambassador Training	30	30 June 21 to 20 July 21	MoE Innovation cell and AICTE
Dr. Sreela Sreedhar	FDP on “Grid Integration of Renewable Energies & Block Chain Technology”	3	21-25 June-2022	Andhra Loyola Institute of Engineering and Technology, Vijayawada
Dr.Jesna Anver	Inculcating Universal Human Values in Technical Education	5	09-13 Aug 2021	AICTE
Dr.N Vishwanath	Innovation Ambassador Training	30		IIC
Mr. Eldhose P Sim	Machine Vision and Digital Twin	5	22-26 Nov 2021	ATAL Academy
Mr. Abin Oommen Philip	FDP on 'Research Trends and Applications of IoT '	5	23-27 May 2022	SCMS School of Engineering and Technology, Karukutty
Mr. Sajith P J	Machine Vision and Digital Twin	5	22-26 Nov 2021	ATAL Academy
Mr. Sajith P J	Recent Trends in Artificial Neural Networks	5	21-25 Sept 2021	ATAL Academy
Mr. Sajith P J	Revolution in 5G and beyond with Industrial Instrumentation approach and Machine Learning from	5	13-17 Sept 2021	ATAL Academy
Mr. Sajith P J	Robotics	5	23-27 Aug, 2022	ATAL Academy
Ms.Ashly Joseph	Applied Deep Learning and AI for Medical Data Analysis	10	16-27 July 2021	EduxLabs in association with E-Cell IIT Hyderabad.
Ms.Ashly Joseph	Grid Integration of Renewable Energies & Block Chain Technology	3	23-25 June, 2022	Andhra Loyola Institute of Engineering and Technology: Vijayawada



Ms. Ceira Sara Cherian	Grid Integration of Renewable Energies & Block Chain Technology	3	23-25 June, 2022	Andhra Loyola Institute of Engineering and Technology: Vijayawada
Ms. Elsaba Jacob	Modern Web Application Development with MEAN Stack	4	05-10 Jan, 2022	ICT Academy of Kerala
Ms. Elsaba Jacob	'Research Trends and Applications of IoT'	5	23 -27 May 2022	SCMS School of Engineering and Technology, Karukutty
Ms. Mithu Mary George	"Grid Integration of Renewable Energies & Block Chain Technology"	3	23-25 June, 2022	Andhra Loyola Institute of Engineering and Technology: Vijayawada
Ms. Rinu Rose George	Artificial Intelligence and Data Science	3	17-19 March 2022	SNGCE Kadayirippu, Ernakulam
Ms. Saira Varghese	Atal FDP on Algorithms and Complexity	5	13-17 Sept 2021	Government Engineering College, Idukki (DTE sponsored)
Ms. Saira Varghese	Atal FDP on Fog and Edge Computing Challenges and Research Directions	5	26-30 Oct 2021	National Institute of Technology, Sikkim, Atal
Ms. Saira Varghese	Infrastructure and Security Challenges in Cloud Computing	5	19-24 July 2021	SCMS School of Engineering & Technology, Karulutty, Kerala
Ms. Sherin Sebastian	Cyber Security and Forensics	3	01-03 Sept 2021	Amal Jyothi College of Engineering, Kanjirappally, Kerala (KTU sponsored)
Ms. Sherin Sebastian	Machine Learning & Data Analytics	6	15-20 Nov 2021	Mar Athanasius Colle of Engineering, Kothamangalam
Ms. Sreeranjini Nandakumar	Machine Learning & Data Analytics	6	15-20 Nov 2021	Mar Athanasius Colle of Engineering, Kothamangalam
Ms. Sreeranjini Nandakumar	Refresher Programme on Outcome based Education in Professional Institutions	6	27 Dec 2021 to 01 Jan 2022	AICTE-ISTE approved - St. Joseph's College of Engineering & technology

STUDENT – EXTERNAL PARTICIPATION

Sl. No.	Name of Students	Batch	Name of the Institution	Event Type	Date	Winner/ Participated	Symposium/ Seminar/ Workshop
1	Rithin Varghese Vyshnav Sasidharan Raghesh Kumar Nandu Nagesh	2017-'21	CSI InApp	International Student Project Awards	01 July 2020	Winner	Project Competition
2	Nayanthara Mariyan	2019-'23	IIT(BHU), Varanasi, UP	Webinar on "Carrier Guidance on Electric Vehicle Sector"	15 May 2022	Participated	Technical Symposium
3	Sangeeth Shaji	2019-'23	IIT, Kharagpur, WB	Workshop on "IOT & Robotics "	11 Sept 2021	Participated	Technical Symposium
4	Amal KS	2019-'23	IIT(BHU), Varanasi, UP	Workshop on "Electric and future mobility "	14-15 May 2022	Participated	Technical Symposium



5	Amal KS	2019-'23	IIT(BHU), Varanasi, UP	Workshop on "Automotive diagnostic and tuning"	7 - 8 May 2022	Participated	Technical Symposium
6	Rithin Varghese Vyshnav Sasidharan Raghesh Kumar Nandu Nagesh	2017-'21	KSCSTE	TechFest	07 Dec 2021	Winner - Bronze	Project Competition/ Techfest
7	Nikhita Mariam Cherian Gokul Kiran Prince Puthuserry	2017-'22	KSCSTE	Student Project Funding	Aug-21	Winner	Student Project Funding
8	Rithin Varghese Vyshnav Sasidharan Raghesh Kumar Nandu Nagesh	2017-'23	KSCSTE	Student Project Funding	Aug-21	Winner	Student Project Funding
9	Chinju Ann John	2021-'25	MEA Engineering College, Perinthalmanna	Wordhippo 3.0-crossword competition, IEEE	18 March 2022	Participated	Technical Symposium
10	Bhavya Ajith	2021-'25	MEA, Perinthalmanna	JAM (Just a minute)	18 March 2022	Participated	Technical Symposium
11	Sreelakshmi T Sunilkumar	2020-'24	IIT, Palakkad	Rhymeit - Free Style Poetry	07 Jan 2022	Participated	TechFest

BEST PRACTICES

STUDENT INTERNSHIPS:

All students undergo internship trainings in reputed companies during their semester break. This gives them an exposure to live industry scenario. Due to Covid pandemic, only limited number of virtual internships were possible in this academic year.

CLASS COMMITTEE MEETINGS

Class committee meetings are conducted regularly in every semester for all the batches. This is an interaction program with the student representatives and faculty, so that feedbacks can be assessed regularly and action plans can be taken up.

PTI MEETINGS

Parent Teacher Interaction meetings are conducted online once in a semester for all the batches. The activities and achievements of the department are briefed to the parents during this meeting. One to One call with teaching faculty is also arranged to keep track of the performance of their wards so that proper follow up actions can be

taken. Feedback from parents on academics and infrastructure are collected for continual improvement.

FEEDBACK MECHANISM

The department follows online feedback mechanism. The feedbacks for each subject are taken twice a semester to assess the faculty performance. Infrastructure feedback is also taken to assess the infrastructure provisions.

GROUP ADVISORY & SPECIAL MENTORING

Department follows group advisory system for effective mentoring of students. The students of each class are divided into groups and a teaching faculty is assigned as mentor for their support. Special Mentors are also provided for under performers and constant monitoring is being done. Meeting with Principal is arranged for Toppers as well as Low performers once in a semester, so that their problems if any can be solved effectively. Counseling and Psychology department of TIST provides further assistance in mentoring.



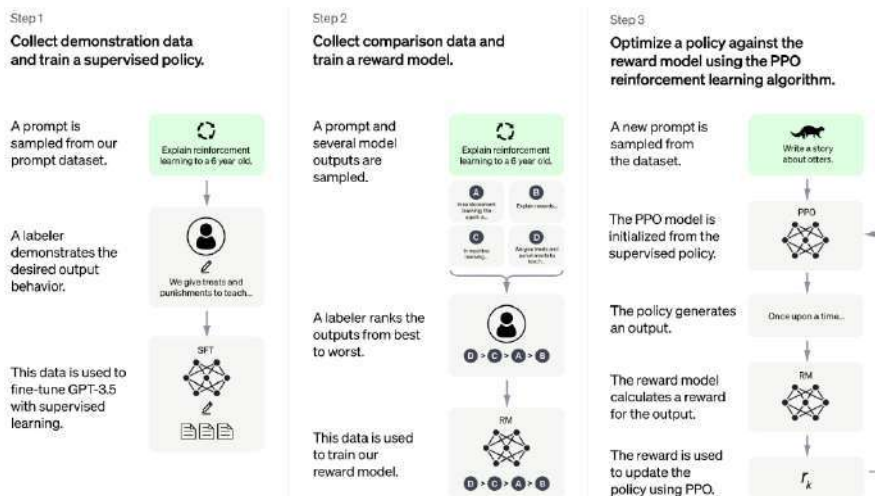
CHAT GPT, THE NEW TREND

PRAISY MARIA JOSEPH (2020-'24 batch)



ChatGPT is a viral chatbot released by Open AI. It has gone viral since the company released the text-based artificial intelligence tool on 30th November 2022. It is the latest development in the world of **generative AI**, which has attracted huge attention. GPT stands for Generative Pre-trained Transformer. It is a chatbot built on top of OpenAI's GPT-3 family of large language models, and is fine-tuned (an approach to transfer learning) with both supervised and reinforcement learning techniques. ChatGPT quickly garnered attention for its detailed responses and articulation of answers across many domains of knowledge.

ChatGPT was fine-tuned on top of GPT-3.5 using supervised learning as well as reinforcement learning. Both approaches used human trainers to improve the model's performance. In the case of supervised learning, the model was provided with conversations in which the trainers played both sides: the user and the AI assistant. In the reinforcement step, human trainers first ranked responses that the model had created in a previous conversation. These rankings were used to create 'reward models' that the model was further fine-tuned on using several iterations of Proximal Policy Optimization (PPO). Proximal Policy Optimization algorithms present a cost-effective benefit to trust region policy optimization algorithms; they negate many of the computationally expensive operations with faster performance. The models were trained in collaboration with Microsoft on their Azure supercomputing infrastructure.



In addition, OpenAI continues to gather data from ChatGPT users that could be used to further train and fine-tune ChatGPT. Users are allowed to upvote or downvote the responses they receive from ChatGPT; upon upvoting or downvoting, they can also fill out a text field with additional feedback.

It has slowly become one of the most popular AI-based tools which are being actively used by

students, working professionals, and teachers. If you ask Chat GPT a question, it will analyze thousands of web pages and content on the internet in seconds and give you a detailed answer within the set word limit. People have been using Chat GPT for homework, writing books, and even writing comedy routines. Every time you ask Chat GPT a question, it will give you a detailed answer and even learn more, which will equip it to give even better answers in the next attempt.

As Open AI mentions, 'ChatGPT is optimizing language models for dialogue'. The model interacts in a conversational way. The dialogue format makes it possible for ChatGPT to answer followup questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests. ChatGPT is a sibling model to InstructGPT, which is trained to follow an instruction in a prompt and provide a detailed response. This model is trained using Reinforcement Learning from Human Feedback (RLHF), using the same methods as InstructGPT, but with slight differences in the data collection setup.

Ref: <https://openai.com/blog/chatgpt/>

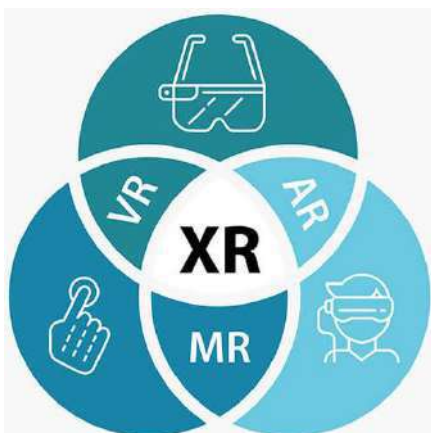


EXPLORING EXTENDED REALITY (XR)

Extended reality (XR) is an umbrella term used to describe immersive technologies that enable users to experience life in a way that goes beyond their present reality. This technology includes virtual reality (VR), augmented reality (AR) and mixed reality (MR). From entertainment to education and construction to healthcare, XR technology is already being incorporated across many industries. And XR technology is just getting started, with limitless possibilities for future real-world applications.



Extended reality (XR) uses technological innovations to move beyond the natural environment and into one that allows for computer-generated, 3D experiences. Since 2010, extended reality technologies have gained significant momentum with the Oculus Rift VR headset prototype, providing users with a 90-degree field of vision of a simulated world. By 2016, Microsoft released the HoloLens headset, giving rise to even more interactive augmented reality experiences.



Augmented Reality

Augmented reality (AR) is a type of XR technology in which virtual information and objects are superimposed onto natural surroundings. In other words, AR allows for real-world enhancements by adding images, text or animation to the existing environment. Examples of AR technology in use today include Snapchat interactive filters, Pokemon Go! and IKEA's augmented reality home design experience, all of which are discussed in greater detail below.

Virtual Reality

Unlike augmented reality, virtual reality involves fully immersing users in a simulated 3D virtual environment. VR experiences require users to wear a headset to experience a 360-degree view of a digital world. This exciting

segment of XR technology enables users to see and interact with objects and places beyond the real world. While VR has gained steam in other industries such as healthcare, construction and education in recent years. Current uses of this technology include gamers exploring virtual worlds with the Meta Quest VR headset and surgeons using VR models to identify the exact position of tumors.

Mixed Reality

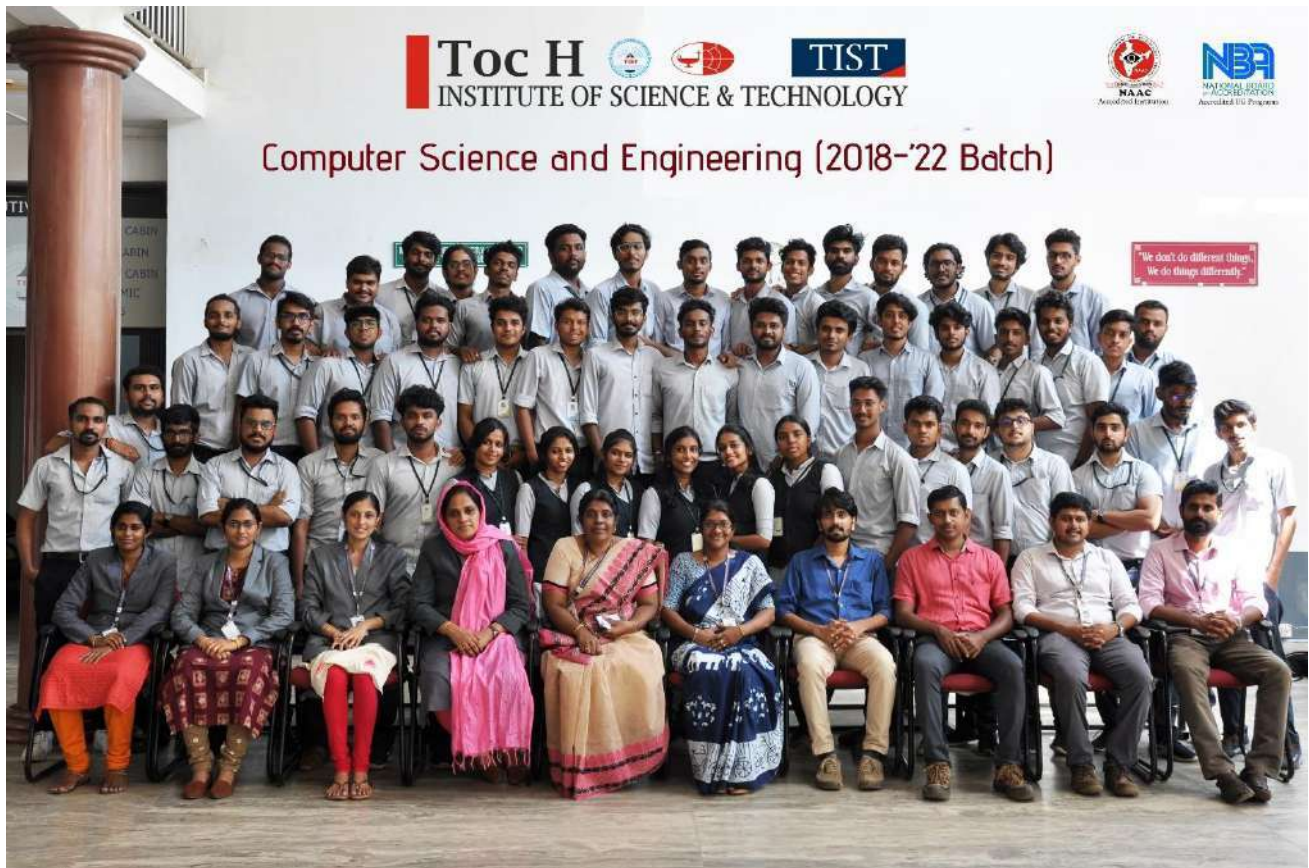
Bridging the gap between AR and VR capabilities is mixed reality (MR) technology. Like AR experiences, MR enables digital and real-world objects to exist alongside each other. However, this hybrid environment takes things one step further by enabling digital and real-world objects to interact in real time. And like VR, MR utilizes wearables to help integrate impressive holographic representations of people and objects within real-world surroundings. One example of mixed reality technology in use today is Microsoft's HoloLens headset, which includes a see-through display that enables the user to perceive digital objects as if they exist in a real-world environment.

XR Technology Applications:

XR technology is already being used in transformative ways across a range of industries, including entertainment, education and training, healthcare, manufacturing and retail. Whether utilizing virtual, augmented or mixed reality components, extended reality offers great promise for enhancing capabilities within these sectors and beyond.



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