



In Association with



INTERNATIONAL CONFERENCE ON ADVANCES IN INFORMATION TECHNOLOGY AND MANAGEMENT

Leveraging Information Technology for Sustainability in Agriculture & Medicine - COVID-19 Crisis

12 - 13 February 2022



Thakur Educational Trust's (Regd.)

Thakur Institute of Management Studies, Career Development & Research

(Approved by AICTE, Govt. of Maharashtra & Affiliated to University of Mumbai)

ISO 9001 : 2015 Certified • MCA Program Accredited by National Board of Accreditation, New Delhi

Copyright © 2022 by Thakur Institute of Management Studies, Career Development and Research, Mumbai, India.

Permission to make digital or hard copies of portions of this work for personal or classroom use is granted without fee, provided that the copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by other than TIMSCDR must be honored. Abstracting with credit is permitted.

Limits of Liability: While the conference organizers and the printers have used their best efforts in preparing this proceeding, they make no representation or warranties with respect to the accuracy or completeness of the comment, and specially disclaim any implied warranties of merchantability or fitness for any particular purpose. There are no warranties which extended beyond the descriptions contained in this paragraph. The accuracy and completeness of the information provided herein are not guaranteed or warranted to produce any particular results and the advice & strategies contained herein may not be suitable for every individual. The conference organizers, printers & publishers shall not be liable for any loss or profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

The views and opinions expressed in the papers are those of the authors only. The responsibility of any copyright violation remains with the authors of the papers. The organizers or advisory committee members of the conference shall not be responsible for it in any way whatsoever.

Trademark: All brand names & product names used in this proceeding are trademarks, or trade names of their respective holders. Organizers & printers are not associated with any product or vendor mentioned in this proceeding.

ISBN: 978-81-949693-5-8

Printed in India Thakur Institute of Management Studies, Career Development and Research, Mumbai, India.

Copyright © 2022 by Thakur Institute of Management Studies, Career Development and Research, Mumbai, India.

Permission to make digital or hard copies of portions of this work for personal or classroom use is granted without fee, provided that the copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by other than TIMSCDR must be honored. Abstracting with credit is permitted.

Limits of Liability: While the conference organizers and the printers have used their best efforts in preparing this proceeding, they make no representation or warranties with respect to the accuracy or completeness of the comment, and specially disclaim any implied warranties of merchantability or fitness for any particular purpose. There are no warranties which extended beyond the descriptions contained in this paragraph. The accuracy and completeness of the information provided herein are not guaranteed or warranted to produce any particular results and the advice & strategies contained herein may not be suitable for every individual. The conference organizers, printers & publishers shall not be liable for any loss or profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

The views and opinions expressed in the papers are those of the authors only. The responsibility of any copyright violation remains with the authors of the papers. The organizers or advisory committee members of the conference shall not be responsible for it in any way whatsoever.

Trademark: All brand names & product names used in this proceeding are trademarks, or trade names of their respective holders. Organizers & printers are not associated with any product or vendor mentioned in this proceeding.

ISBN: 978-81-949693-5-8

Printed in India Thakur Institute of Management Studies, Career Development and Research, Mumbai, India.

Our PEOs and POs

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

1. To enable students to gain knowledge across all domains of Information Technology with in-depth understanding of their applications.
2. To enable students to analyze problems and to design and develop software solutions using emerging tools and technologies.
3. To enable students to continue Life-long learning, Research and Entrepreneurial pursuit in their chosen fields.
4. To develop communication, teamwork, and leadership skills necessary to manage multidisciplinary projects and serve the society as responsible and ethical software professionals.

PROGRAM OUTCOMES (POs)

PO-1: Computational Knowledge – Apply domain specific knowledge of computing and mathematics for designing of software solutions for defined problems and requirements.

PO-2: Problem Analysis – Understand and analyze a problem and suggest feasible solutions.

PO-3: Design/ Development of Solution – Design, evaluate, and develop effective solutions for complex computing problems to meet desired needs.

PO-4: Conduct investigation of complex computing problems – Design and conduct experiments and use research-based methods to investigate complex computing problems.

PO-5: Modern tools usage – Use appropriate techniques and software tools for computing activities.

PO-6: Professional Ethics – Understand and commit to professional norms, regulations and ethics.

PO-7: Life long Learning – Recognize the need for and have the ability to engage in independent learning for continual professional development.

PO-8: Project management and finance – Understand and apply project management principles, as a member or leader in multidisciplinary environments.

PO-9: Communication Efficacy – Effectively communicate technical information, both oral and written with range of audience.

PO-10: Societal & Environmental Concern – Analyze societal, environmental, cultural and legal issues within local and global contexts when providing software solutions.

PO-11: Individual and Team Work – Work as a member or leader in diverse teams in multidisciplinary environments.

PO-12: Innovation and Entrepreneurship – Use Innovation and Entrepreneurship for creation of value and wealth.

VISION

Thakur Institute of Management Studies, Career Development and Research will become a premier Institute renowned internationally for providing education in Software Application to graduates from various disciplines.

MISSION

To achieve excellence in providing software education so that students can grasp existing as well as emerging technologies and to inculcate leadership and managerial qualities in them so that they can deliver results in the organization they join.

QUALITY POLICY

We, the staff, faculty and management of Thakur Institute Of Management Studies, Career Development and Research are committed to offer excellence in software education, conducive academic environment and state of-the-art infrastructure to our students. We work as a team and interact with students in pro-active manner to achieve our Quality Objectives and fulfill all academic, statutory and regulatory requirements to entire satisfaction of our students as well as for continual improvement of QMS.



Thakur Educational Trust's (Regd.)

**THAKUR INSTITUTE OF
MANAGEMENT STUDIES, CAREER
DEVELOPMENT & RESEARCH**

(Approved by AICTE, Govt. of Maharashtra & Affiliated to University of Mumbai)

ISO 9001 : 2015 Certified • MCA Program Accredited by National Board of Accreditation, New Delhi

Thakur Educational Campus,
Shyamnarayan Thakur Marg, Thakur Village,
Kandivali (East), Mumbai - 400 101.

Tel.: 6730 8301 / 2, 2884 0484 / 91

Fax : 2885 2527

Email : timsedr@thakureducation.org

Website : www.timsedrmbai.in • www.thakureducation.org



Chief Patron's Message for ICAIM-2022

During the last few years, TIMSCDR, under the aegis of Thakur Education Group (TEG) has been excelling in its journey into the field of education and research of international standards. TIMSCDR, in its journey towards excellence has taken the initiative in organizing yet another International Conference 'International Conference on Advances in Information Technology and Management - Leveraging Information Technology for Sustainability in Agriculture & Medicine - COVID-19 Crisis'.

The aim of the conference is not only to create awareness about the imminent issue of waste management and make people environmentally responsible but also to understand how to gain maximum return from waste resources. Achieving environmental objectives in an increasingly competitive business climate requires access to the best and most up-to-date information available. I am sure this conference will provide a platform to progressive farmers, healthcare professionals and academicians to probe into various opportunities to design and practice an integrated and sustainable system for waste management.

I take this opportunity to congratulate the organizing committee for their dedication and hard work for successfully arranging this event. I am also very grateful to all the delegates and research scholars for sharing their research work and making this conference a huge success.

V. K. Singh
Chairman



Thakur Educational Trust's (Regd.)

**THAKUR INSTITUTE OF
MANAGEMENT STUDIES, CAREER
DEVELOPMENT & RESEARCH**

(Approved by AICTE, Govt. of Maharashtra & Affiliated to University of Mumbai)

ISO 9001 : 2015 Certified • MCA Program Accredited by National Board of Accreditation, New Delhi

Thakur Educational Campus,
Shyamnarayan Thakur Marg, Thakur Village,
Kandivali (East), Mumbai - 400 101.

Tel.: 6730 8301 / 2, 2884 0484 / 91

Fax : 2885 2527

Email : timsedr@thakureducation.org

Website : www.timsedrmbai.in • www.thakureducation.org



CEO's Message for ICAIM-2022

I feel privileged to welcome you all for the upcoming International Conference on Advances in Information Technology and Management titled “Leveraging Information Technology for Sustainability in Agriculture & Medicine - COVID-19 Crisis” organized by TIMSCDR, under the aegis of Thakur Education Group (TEG).

Due to tremendous increase in human population and industrial development, waste is being generated at a colossal level and managing it has become a very challenging task for the human kind. Waste management is now not about merely dumping the unwanted things in a random way it but has become a systematic process consisting of collection, transportation, and proper disposal of garbage, sewage and other waste products.

This conference, a distinctive endeavor of TIMSCDR, will provide a platform for the exchange of ideas and findings of all intellectuals from academia, industry and research institutions in the area of application of Information Technology for waste management. I am sure this exchange of ideas among eminent and erudite personalities from relevant fields will open many more avenues of future technological enhancements.

The zeal and enthusiasm with which the organizing committee has come forward is commendable. I extend my best wishes to the faculty, delegates and the organizing committee for excellence in their endeavors.

Mrs. Karishma V Mangal

CEO



Thakur Educational Trust's (Regd.)

**THAKUR INSTITUTE OF
MANAGEMENT STUDIES, CAREER
DEVELOPMENT & RESEARCH**

(Approved by AICTE, Govt. of Maharashtra & Affiliated to University of Mumbai)

ISO 9001 : 2015 Certified • MCA Program Accredited by National Board of Accreditation, New Delhi

Thakur Educational Campus,
Shyamnarayan Thakur Marg, Thakur Village,
Kandivali (East), Mumbai - 400 101.

Tel.: 6730 8301 / 2, 2884 0484 / 91

Fax : 2885 2527

Email : timsedr@thakureducation.org

Website : www.timsedrmbai.in • www.thakureducation.org



Director's Message for ICAIM-2022

“ Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time.” – Thomas Edison

Even as the world surges through the third wave of the pandemic the only thing that has not changed is the courage to never give-up by mankind. Countries across the globe have fought the pandemic together contributing and helping one another to overcome the pandemic and the challenges faced due to it. ICAIM 2022 titled “Leveraging Information Technology for Sustainability in Agriculture & Medicine – COVID-19 Crisis” has emerged through two waves of the pandemic.

Due to the uncertainties imposed by the COVID-19 pandemic, interactions with stakeholders from the Agriculture and Medical domain were sparse. Efforts were made to connect with progressive Farmers who were using Information Technology specifically to confront the pandemic crisis. Discussions on the use of IT to maintain sustainable food chain and help farmers to maintain profitability helped to understand the actual use of technologies like Blockchain, AI and Robotics at the ground level. The Healthcare domain which is continuously at the frontend amidst the pandemic has incorporated the leverage of IT to offer touchless healthcare solutions. The Ayushman Bharat Digital Mission (ABDM) initiative by the Government of India is the way forward for digitizing the Healthcare sector. This transformation will be challenging but will bring our country par with the other countries where Policies of digitizing Healthcare have already been implemented. Discussions with stakeholders from the Healthcare domain helped to understand the current level of digitization at individual Doctors level and the Hospital level.

Digitizing the Education domain, specifically the Classroom has been an introverted experience for the teacher and the learner. The Teaching Learning process involving teacher student interactions through classroom teaching and interfacing with peers cannot be equate with Virtual Classroom teaching which is unable to incorporate holistic development of the student. Such Virtual education would be appropriate for skill enhancing certifications.

Technologies like AI, Machine Language, Blockchain, IoT, Robotics, Cyber Security are most prominently used in every domain. Software applications are designed with these technologies relevantly embedded to deliver the necessary services. The COVID-19 pandemic has brought several changes, of which touchless service as one of the most prominent change. Due to virtualization, data and application are now Cloud based. Thus, Cloud Technologies are the base of IT applications and services.

ICAIM 2022 is supported by NCSH (Nordic Center of Sustainable Healthcare) - Sweden, Development Management Institute (DMI) – Patna, AMC (Association of Medical Consultants), MACCIA (Maharashtra Chamber of Commerce, Industry and Agriculture), CSI (Computer Society of India) and NASSSCOM who have helped connect with experts from the domains of Agriculture, Healthcare and IT.

ICAIM 2022 proceeding comprising of articles and research papers authored by students and faculty respectively is an outcome of relentless effort made by all staff members of the Institute. The proceedings content focuses on the leverage of IT in domains of Agriculture and Healthcare in specific and other domains in general.

International Conference ICAIM 2022 had experts from NCSH (Nordic Center of Sustainable Healthcare), Sweden and Blazeclan Technologies (Malaysia) who will part of the deliberations and sessions during the conference.

Pre-Conference sessions were delivered by erudite speakers from domains of Agriculture, Healthcare and IT from 7 to 10 February 2022. The Innovation Carvinal in association with DCB brought the student back to campus for a Hackathon. Panel Discussions with prominent panelist and expert sessions made ICAIM 2022 a perfect blended platform to come up with solutions amidst the challenges of the COVID-19 pandemic. Workshops on Blockchain and IoT were conducted for students.

ICAIM 2022 displays the never give-up attitude of TIMSCDR. I thank our open minded Management for their whole hearted support not only for ICAIM but several other initiatives which focus on Faculty development and promote Holistic Education for students. I thank every staff member of TIMSCDR for making ICAIM 2022 a success. My best wishes to our students and delegates as they participate in ICAIM 2022.

I virtually invite the delegates of ICAIM 2022 and wish them All the very Best.

About TIMSCDR

The Thakur Educational Group comprises of three Trusts namely Thakur Educational Trust (Regd.), Zagdu Singh Charitable Trust (Regd.) and Zagdu Singh Educational Trust (Regd.) managed by the Thakur family and runs 19 Institutes located in Kandivali, western suburb of Mumbai.

TIMSCDR (Thakur Institute of Management Studies, Career Development and Research) is dynamic institute striving to provide quality higher education. The institute is an ISO 9001:2015 certified providing three years MCA (Master of Computer Application) course. The MCA Course of TIMSCDR is NBA Accredited. All possible ways of acquiring academic insight and undertaking appropriate academic initiatives are explored at the institute. TIMSCDR also has an ISTE (Indian Society of Technical Education) chapter. Residence-cum-study facility is available for boys and girls in secured modern Hostel Buildings with green, clean and healthy ambience situated near the Institute.

TIMSCDR is organizing next International Conference ICAIM-2022 which serves as a platform for gathering all academicians, industrialist, researchers and professionals in the disciplines of Information Technology, Agriculture and Medicine (Nutrition).

About AMC

The Association of Medical Consultants (AMC) was established in 1972 by a small group of energetic active and concerned medical consultants from distant suburbs who often assembled and animatedly discussed their common problems. Over the years, the immense need rose for an organisation of this nature and the Association grew rapidly. It is now one of the fastest growing Associations of Specialist Doctors in Mumbai and boasts of a membership strength of more than 9000 Medical Consultants. AMC represents Consultants practicing at corporate and non corporate Tertiary care referral Hospitals (both Government and Private) and individual Consultants practicing through their own consulting rooms, Clinics & Nursing Homes spread across Greater Mumbai, Navi Mumbai and Thane districts. It is recognized as a frontline Medical Organization and is an important opinion making body which addresses vital public health and professional issues facing the medical profession in general and medical consultants in particular. AMC has effectively brought together consultants of various disciplines on one platform and aims to highlight and offer solutions to all the important day to day problems faced by consultants.

About MACCIA

Maharashtra Chamber of Commerce, Industry & Agriculture (MACCIA) is the Apex Chamber of the State. The Chamber plays a pivotal role in supplementing and augmenting the efforts of Government for the economic development of the State and advancement of its people. With more than 3500 direct Members, comprising of large, medium and Small-Scale Industries, Traders, Agriculturist and Professionals, MACCIA is the only Chamber in Maharashtra, which has deep-roots in all the 35 Districts encompassing 355 Talukas of Maharashtra. In addition over 800 Local Trade and Industry Associations and professional bodies having collective membership of over 700,000 business organizations from all over the State are affiliated to the Chamber and thus it virtually functions as the State's Apex Chamber.

NCSH

Nordic Center for Sustainable Healthcare (NCSH) is a cross-sectoral arena and network involving stakeholders, organizations, projects and expertise in the area of sustainable healthcare, all sharing the goal to create a more sustainable healthcare sector. The network of NCSH includes companies, hospitals, regions, universities, NGOs, clusters and more. Together they form an arena which generates collaborations, projects, business, knowledge and new innovative ideas.

About DMI

Development Management Institute (DMI) was set up on February 13, 2014 pursuant to a desire of the Government of Bihar to establish a High Performing Knowledge Institution (HPKI). DMI believes that the livelihoods of small producers and marginalised people can be enhanced by organising them to form member participation based, democratically governed institutions that leverage the strengths of collectives and build enduring partnerships with professionals for reaping the benefits of technology and market integration. Inspired by and recognising the growing need for Development Management Professionals, the Government of Bihar took the initiative to establish DMI as an autonomous institution. The rationale of DMI is best captured in its mission.



N. Anandaraja

Tamil Nadu Agricultural University, Thanjavur

The new world is evolving on every day on usage of technology gadgets and services. During COVID-19 pandemic, every activity was standstill. Agriculture attained a special status among young minds and highly recognized pluralistic societies. On the occasion of country lock down, many technocrats back to rural localities and their native villages for their work in home and farm. Considering the diversity with different topographic conditions, the challenges are unfolding in farm enterprises. Being a tropical climate center, it is tough to make exact forecast and linking all stakeholders “farm to fork” is a herculean task. At the same, India is a global leader in Information Technology as dominates in the Silicon Valley. The usage of Internet of Things (IoT) and Information and Communication Technology (ICT) got new dimension and facilitating us on on-line education, net transaction, on-line shopping and virtual conference connectivity. Similarly, IoT and ICT applications needs to reach farmers connecting all mandis for better market price. The users / consumers should have nominal price with toxic free food. On this important occasion, an International Conference -ICAIM 2022 scheduled on 12th and 13th February 2022 at Thakur Institute of Management Studies, Career Development & Research, Mumbai. I wish and extend my greetings that the conference event “Leveraging Information Technology for Sustainability in Agriculture & Medicine - COVID-19 Crisis” will bring pragmatic paves on the above issues.



Mr. Rajendra Bhat

Agro Consultant, Nisarga Mitra Farms

नमस्कार,

आपले कॉलेज जो वार्षिक कार्यक्रम शेती व IT यासाठी कृतीशिल उपक्रम करुन समृद्ध शेती व विद्यार्थींचे प्रबोधन आणि भविष्यातील व्यवसाय संधी या साठी जो उपक्रम सातत्याने करत आहे त्यास तोड नाही. सामाजीक जाणीव आज अभावाने भोवतालच्या जगात दिसत आहे तेथे आपल्या संस्थेचा हा उपक्रम उठुन दिसतो. अन्न सुरक्षा व सुरक्षीत अन्नासाठी IT चा वापर ही संकल्पनाच विद्यार्थ्यांच्या भविष्याचा विचार करणारी आहे. आपण जे वेगवेगळे विषय विद्यार्थ्यांच्या जाणीवांच्या कक्षा शेती क्षेत्रासाठी वाढवत आहात त्या बदल शेतकऱ्यांच्या वतीने मी डॉ. विनीता गायवाड व त्यांची टीम आणि व्यवस्थापनाचे आभार मानतो आणि पुढील वाटचाली साठी शुभेच्छा देतो.

मला आपण अनेक वेळा विद्यार्थींसमोर माझे विचार मांडण्याची संधी दिलीत त्याबद्दल मी सर्वांचा आभारी आहे.

कोवीड काळात समाज परत शाश्वत जिवन शैलीकडे मोठ्या टक्केवारीत वळत आहे. अशा काळात त्यांना IT क्षेत्राची फार मोठी मदत होणार आहे. आम्ही सर्व शेतकरी आपल्याकडे आशेने बघत आहोत.

आपण सर्वजण मिळुन सुजलां सुफलांम भारत देश नक्कीच बनवु .

धन्यवाद



Mr. Dineshkumar Singh

Group Leader, TCS Digital Farming Initiative

COP26 has brought the world focus back to global warming and sustainability. ICAIM is an opportunity for the budding talents to pick up the agriculture and healthcare problems from the community and apply their knowledge to solve, showcase and present them. This becomes the foundation for the next jump in their career, either through employment, higher education, or entrepreneurship. Exploit the opportunity.



Dr S Rajeshwaran

Professor, Development Management Institute, Patna

Am delighted to see that the Thakur Institute of Management Studies, Career Development and Research is conducting an international conference on “Leveraging Information Technology for sustainability in agriculture and medicine”. Documenting, collating and analysis of Information in the field of agriculture and medicine especially in the Indian context is an untapped area but with high leverage, for information asymmetry is the bane of both verticals. This has only been furthered by the present viral pandemic situation wherein people cannot travel to meet in person to share and discuss information. It has now been seen that information can still continue to be collected, analysed and discussed without any stop, that too with more people simultaneously with minimal cost and time. As a result, Information technology not only reduces information asymmetry but has also speeded up the entire learning process. Hence, this is a blessing in disguise for every citizen as a consumer of relevant information, on a dynamic basis.

In this regard, I am sure the presentations and deliberations at this conference will address some of the live issues in these two sectors and encourage more researchers to delve into these areas and thus benefit individual citizens. I wish the organisers and the Institute all success for this Conference.



Mr. Sanjay Kimbahune

Sr. Scientist, TCS research

Current COVID crisis has changed the way we live. On brighter side, use of IT in all aspects of life has increased significantly. People are more aware about their health and very good quality supply chain from farmers to consumers got established. However a lot more could be done in this area. This conference is a very good platform to exchange ideas in healthcare and agriculture domain keeping IT at the core. Best wishes for grand success of the conference.



Ms. Rasika Pathak

Progressive Farmer, Consultant

कृषि क्षेत्रामध्ये आमुलाख बदल होत असताना, तसेच, जागतिक तापमान वाढमुळे कृषि उत्पांनांवर होणारा परिणाम व त्यामुळे शेेतकरी बांधवांमध्ये होणारी पिछेहाट यासाठी म्हणून शाश्वत शेती करणे अत्यंत आवश्यक व महत्वाचे आहे.

यासाठी पिकांचे योग्य नियोजन, रसायनांचा व किटकनाशकांच्या योग्य व्परमसाठ वापर, सेंद्रिय वस्तूंचा केलेले निष्पन्नप्रासाविक विपणन व्यवस्थापन, आधारभूत किंमती करण्यात येणारा पतपुरवठा, शासनांकडून वेगवेगळ्या योजनांच्या माध्यमातून देण्यात येणारे अनुदान यामध्ये शुसूचता आणि समन्वय साधण्याची आवश्यकता आहे. यासाठी म्हणून ठाकूर इन्स्टिट्यूट यांच्या माध्यमातून विद्यार्थी व शेेतकरी वृत्तात बाबबित तंत्रगुद्वय माठवून देण्यात येते.

या अतिरिक्त महत्वाच्या आंतरराष्ट्रीय परिषदेमध्ये शाश्वतशेती या विषयावर चर्चा होणार आहे. ठाकूर इन्स्टिट्यूट ऑफ मॅनेज्मेंट स्टडीज, कोरिअर डेव्हलपमेंट आणि रिसर्च या संस्थेच्या संयुक्तिका डॉ. विनिता गायकवाड आणि त्यांचे सर्व सहकारी यांना परिषदेच्या शरार्विदेसाठी खूप मेहनत होती आहे. त्यांचे मनापूर्वक अभिनेदन आणि परिषदेसाठी खूप खूप शुभेच्छा!

रसिका अनिल फाटक (BSc. Ag)
कृषिमाई अँड्रो अलिसेस
हपिसलगागर - परीकी
सुधागड, जिल्हा - रायगड.

Well Wishers of ICAIM - 2022



Mr. Lalit Gandhi
President, MACCIA



Dr. Mukesh Gupta
Founder Director – Le’Nest,
Immediate Past President – AMC



Dr. Vikrant Desai
Radiologist, Program
Committee Chairman - AMC



**Mr. Johannes
Brundin**
Co-Founder NCSH, Sweden



**Mr. Chandrashekhar
Bhadsavle**
Managing Trustee at Saguna
Rural Foundation



**Dr. Sureshchandra
Gupta**
Hon. President, CSI



Dr. Suresh A. Shan
Mahindra & Mahindra, CIO,
Head - Innovation & Future
Technologies Business
Information Technology
Solutions (BITS)



Mr. Prasanna Lohar
Chief Innovation Officer,
DCB Bank

CHIEF PATRON

Mr. V. K. Singh, Chairman, TEG

PATRON

Mr. Jitendra R. Singh, Trustee, TEG
Mrs. Karishmma V. Mangal, CEO, TIMSCDR

CONVENER

Dr. Vinita Gaikwad, Director, TIMSCDR
Dr. Mukesh Gupta, Imm. Past President, AMC

CHIEF GUEST

Mr. Lalit Gandhi, President, MACCIA
Dr. Sushmita Bhatnagar, President, AMC

GUEST OF HONOUR

Mr. Debiprasad Mishra, Director, DMI
Mr. Daniel Eriksson, Director, TEM at Lund University,
Founder NCSH, Sweden
Dr. Vikrant Desai, Program Committee Chairman, AMC

ADVISORY COMMITTEE

Mr. Johannes Brundin
Co-Founder NCSH, Sweden

Dr. Dineshkumar Singh
*Group Leader, Social and
Mobility Innovation, TCS*

Dr. Sureshchandra Gupta
Hon. President, CSI

Mr. Sanjay Kimbahune
*Senior Consultant,
TCS Innovation Labs*

Mr. Shekhar Bhadsawale
Managing Trustee, Saguna Baug

Mr. Rajendra S. Bhat
Nisarg Mitra Farm

Mr. Milind Prabhu,
Progressive Farmer

Prof. (Dr.) S. Rajeshwaran
DMI, Patna

Dr. Suresh A. Shan
*Chief Innovation Officer,
Mahindra & Mahindra*

Dr. Seema Bansode Gokhe
*Prof. & HoD, Community Medicine
(P.S.M.), LTMG Hospital, Mumbai*

Mr. Sudhanshu Ojha
General Manager, D-Link Academy

Mr. Deepak Pareek,
*Author, Expert Digital Transformation,
Entrepreneur, Technology Pioneer -
World Economic Forum.*

Ms. Rasika Phatak
Farmer, Agro Consultant

PROGRAM COORDINATORS

Prof. Pankaj Mudholkar, TIMSCDR
Mr. Sagar Nagare, Secretary General, MACCIA

ORGANIZING CORE COMMITTEE

- Dr. Vivek Bhartiya
- Prof. Aprajita Singh
- Prof. Mira Gohil
- Prof. Rupali Jadhav
- Prof. Megha Mudholkar
- Prof. Sonu Gupta
- Prof. Rashmi Vipat
- Prof. Shirshendu Maitra
- Prof. Brijesh Pandey
- Prof. Kinjal Doshi

PREFACE

ICAIM 22 focuses on the use of Information Technology in Agriculture and Medicine as the globe surpasses through the third wave of the COVID-19 pandemic. Every nation is striving for sustainability amidst the challenges posed due to the pandemic. The Agriculture and Healthcare sector have adapted to the pandemic situation making generous use of Information Technology in the domain specific processes, as and where necessary and relevant.

International Conference ICAIM 2022 is backed by the association of prominent bodies like, NCSH (Nordic Center for Sustainable Healthcare) - Sweden, DMI (Development Management Institute) - Patna, MACCIA (Maharashtra Chamber of Commerce, Industry and Agriculture), AMC (Association of Medical Consultants), CSI (Computer Society of India) and NASSCOM to successfully bring together eminent professionals from Agriculture, Healthcare and Information Technology to discuss, deliberate and provide viable solutions for sustainability amidst the COVID-19 pandemic crisis.

In the Agriculture sector, using information technology, dissemination of useful information about agriculture techniques has benefitted farmers across the globe. The biggest challenge of middleman was confronted during the pandemic; with several agriculture startups using Information Technology applications to seamlessly transport fresh farm produce directly from farm to table. The Government of India has also introduced several IT applications both Web and Mobile based for the benefit of the farmers.

In the Healthcare sector, the Government of India has taken the initiative and introduced the Ayushman Bharat Digital Mission (ABDM) to totally digitize the healthcare sector. Implementing ABDM will have its own challenges, never the less; the initiative will now bring India in par with other developed and developing countries across the globe who have already implemented such Digital Healthcare policies. During the pandemic, Telemedicine was used prominently by Doctors across the country by adapting to latest IT tools, thus taking a small step of implementing IT in their daily practice.

Though the implementation of Information Technology has been a boon in the Agriculture and Healthcare sector, in the Education domain, Virtual Education is more relevant in scenarios of earning skill Certifications. At school and college level, Virtual Classrooms are unable to bring about holistic development of the students, which is an essential component for an individual to be successful in life and career.

Information Technology tools have seen an increase in leverage specifically during the pandemic. AI, Robotics, Data Analytics, Machine Language, Cyber Security continue to dominate usage. Cloud technologies are eventually used in every application and form a major component of every Digital project.

ICAIM 2022 Proceedings a conglomeration of research article and papers authored by student and faculty members respectively is an timeless effort made by the entire staff of TIMSCDR. Each article and paper probes in to the leverage of Information Technology in general and in the COVID-19 Crisis in specific.

Dr. Vinita Gaikwad
Director

INDEX

| Sr. No. | Research Paper | Page |
|---------|---|------|
| 1. | A Survey on Weed Detection and Control Approaches Sandip Sonawane, Dr. Nitin N. Patil | 1 |
| 2. | Securing IoT Automated Fishery from Cyber Attacks Dr. Vinita Gaikwad, Dr. Pankaj Mudholkar , Dr. Megha Mudholkar | 10 |
| 3. | Correlating Color Complexity and Mental Health Lomate Nikhita , Gawad Kaushik | 16 |
| 4. | Sustainable agriculture using solar Technology Rupali Jadhav, Kinjal Doshi | 22 |
| 5. | Commuter Survey: A study of commuter in Mumbai city, India Mira H Gohil, Aprajita Singh | 25 |
| 6. | Leveraging Data Science in Healthcare Dr. Vivek Bhartiya, Brijesh Kumar Pandey | 30 |
| 7. | Vertical Farming - A Sustainable farming using IoT Monisa A. Rodrigues, Tarunima Mukherjee | 35 |
| 8. | Blockchain – The Future of Medicare Belel Ankita , Gadala Ana | 38 |
| 9. | Study on Artificial Intelligence Applications uses in Agriculture Padma Nilesh Mishra, Shirshendu Maitra, Dr.Pinky Gerala | 42 |
| 10. | Study on Data Visualization: It's Importance in Education Sector Dr. Pinky Gerela, Rashmi Vipat, Padma N. Mishra | 48 |
| 11. | Leveraging IT to enhance the profitability of small holding dairy farmers Dr. S Rajeshwaran, Dr. Vinita Gaikwad | 52 |
| 12. | Soil Health Testing using IoT Devices Tanvi Chavan, Aditya Divedi | 57 |
| 13. | Study on E-Signatures and Remote Online Notarization Adarsh Kumar Mishra, Kaushal Kamalashankar Mishra | 63 |
| 14. | Study on Role of IoT in Covid-19 Pandemic Ekta H. Patel, Ankita S. Patil | 67 |
| 15. | Arduino Based Home Automation and Security System Siddhant Desai | 71 |
| 16. | Therapy Assistant using Alexa Manthan Mirgal | 76 |
| 17. | GeoThermal Energy Technology Literature Review Sumit Shukla, Sandeep premchand | 79 |
| 18. | Building Blockchain for Blood Bank Center Gaikwad Vijay Narayan, Diksha Dwivedi | 86 |
| 19. | Bioelectronic medicine for diabetes Treatment Pandey Pritika, Naik Mansi | 89 |
| 20. | Excellence With Digital Transformation Benjamin Miller | 93 |
| 21. | Use of I.T. in Poultry Farming Vijeth M Poojary | 97 |

| Sr. No. | Research Paper | Page |
|---------|---|------|
| 22 | Farmer's perception and need of awareness about IT Akanksha Kolekar, Kartika Deore | 101 |
| 23 | Blockchain smart contracts: Applications, challenges and Solutions Anurag Dixit, Kevin Emmatty | 106 |
| 24 | A Study on Computer Vision: Techniques Algorithms and Application Chaitanya Deshpande | 112 |
| 25 | Cyber security and user responsibility: surprising normative differences Omkar Harkar | 116 |
| 26 | The use of wearable devices in the Parkinson's Disease (PD) Aakash Ghaghada, Priya Hadpad | 121 |
| 27 | Agriculture Waste Management and Utilization Bhavesh Nikam, Ravindra pal | 126 |
| 28 | Analysis of E-Health Monitoring Systems and its uses Abhishek Jitendra Mishra | 132 |
| 29 | Accident prevention signal system on hairpin bend road Rushikesh Gopinath Gapat , Ritu Rakesh Dubey | 136 |
| 30 | Study On Virtual Reality in Real Life Param Choudhari, Sanny Darji | 140 |
| 31 | Impact Of Covid 19 On Agriculture Sector Pritee Gupta , Shivram Hiwalkar | 149 |
| 32 | Artificial Intelligence (Ai) In Future Hemant Mistry, Omkar Morvekar | 153 |
| 33 | Staff Availability System Using RFID Jayraj Nalavade, Abhishek Pandey | 156 |
| 34 | Sustaining Natural Vegetables :Today's Needs to Live Longer Dipak Govinda Warke, Durgesh Shivkumar Wakle | 160 |
| 35 | Study of Converting Covid-19 Plastic Waste into Fuel with Automated Temperature Monitoring of Pyrolysis Process Gaurav Deepak Merude, Soniya Sureshchandra Maurya | 163 |
| 36 | Intelligent Safety System for Women Security Abhijit Paradkar | 167 |
| 37 | Life below Water: Addressing Ocean Sustainability using IT Sairaj More, Satish Pandey | 173 |
| 38 | E-Commerce Recommendation System Yashraj Samani, Ashutosh Satralkar | 177 |
| 39 | IoT: Challenges and Issues in Indian Perspective Deepraj Gupta, Kewat Poojadevi | 181 |
| 40 | Research Paper on Stress and Coping Madnala Akshata Prabhakar, Mallah Rohit Ramnath | 186 |
| 41 | Harvesting Energy from Moving Traffic on Highways Vishal Suthar, Mahesh Shinde | 191 |
| 42 | Automatic Temperature Screening System Preventing from COVID-19 Altamash Qureshi, Tausif Khan | 194 |
| 43 | Study of Usage Patterns of Pesticides in India Shivam Tiwari, Yagnesh Vakharia | 197 |

| Sr. No. | Research Paper | Page |
|---------|--|------|
| 44 | Machine Learning based Student Emotion Recognition from Facial Expressions in Online Classrooms Shirshendu Maitra, Padma Nilesh Mishra | 202 |
| 45 | Cloud Based Healthcare Emergency System Using Body Sensor Network Anamika Dhawan, Thara Chakkingal | 207 |
| 46 | Encryption-Decryption Rgb Color Image Using Matrix Multiplication Vinayak Poojari, Justin Puthuparambil | 211 |
| 47 | Biometrics Security Sandhya Santosh, Afsha Shaikh | 216 |
| 48 | Information Technology for Career Guidance Parag More | 220 |
| 49 | A Scrutiny on Corona Virus (Covid-19) And Backing Through It Ankit Mistry, Ashutosh Mishra | 223 |
| 50 | Health Care during Pandemic Ankur J Maurya, Omkar R Manjrekar | 229 |
| 51 | The impact of Artificial Intelligence on Innovation Patel Adarsh L, Vinod Radhakrishnan vanniyar | 233 |
| 52 | A descriptive analysis of the Daknet Dhanesha Naik | 237 |
| 53 | Challenges and Opportunities of IT in Indian Agriculture Sustainability Abhishek Yadav,, Satyam Yadav | 241 |
| 54 | Robotic Process Automation Souleh Shaikh | 245 |
| 55 | Business Intelligence Solutions in Healthcare Ashutosh Yadav , Aman Tiwari | 250 |
| 56 | Review on Sign Language Detection Using Action Detection Smriti Shaji Nair | 253 |
| 57 | Effects of COVID-19 on College Students' Mental Health Vishwakarma Kajal Jokhu, Thakur Shikha | 258 |
| 58 | Study on Hospital Waste Management Raviteja M. Nirati Archana N. Nishad | 265 |
| 59 | Application of Information technology that reduced Agriculture sector impact due to COVID-19 Muskan Shaikh | 269 |
| 60 | Blockchain Technology Improving Precision Agricultural Technique Hritik Jaiswal, Prathamesh Jaiswal | 273 |
| 61 | Smart Waste Management System using IOT Ritu S. Sahu | 276 |
| 62 | Data Science and Big Data in Agriculture Shivam Sanjay Jaiswal | 281 |
| 63 | Introducing an Application for Overwhelming crisis during Covid-19 Deepak Jaiswal, Ekta Jaiswal | 287 |
| 64 | Toxic Electronic Waste Management & Recycling Rohit Chithore, Umang Choudhary | 290 |

| Sr. No. | Research Paper | Page |
|---------|--|------|
| 65 | Information Communication Technology in Healthcare Shilpi Tawde, Vivek Dubey | 296 |
| 66 | India With Limited Carbon Emission Praveen S. Maurya, Vikas L. Maurya | 300 |
| 67 | Smart Parking System based on IoT Bhavin Dhodia, Akshay Dubey | 304 |
| 68 | IOT Role In Agricultural Amit Singh, Brijesh Singh | 309 |
| 69 | Artificial Intelligence: Revolutionizing Indian Healthcare Ashwini Borekar, Rashmi Chaudhary | 312 |
| 70 | Impact of online education in covid-19 Siraj Arvind Chavan, Satyajit Sahebrao Chavan | 316 |
| 71 | Image processing in Home Security : Face reorganization system Rushikesh Bhilare, Sumit Pal | 318 |
| 72 | Importance of Voice Assistant in Real World Nisha Mishra, Shubham Mishra | 323 |
| 73 | Phishing – A Growing Threat to E- Commerce Krunal Sukhdev Chavan | 326 |
| 74 | Book Recommendation System Parth Dave, Ameya Jeurkar | 331 |
| 75 | Information Technology in COVID-19 prevention Bharat Mali, Akhil Lotlikar | 335 |
| 76 | Network Diagnostic Using SDN Shweta Waghmare | 338 |
| 77 | Covid-19 Vaccination in India Aditya Srivastava, Karan Turbhekar | 341 |
| 78 | Open Source Learning: an Imminent Opportunity and Necessity in India Sonu Gupta | 345 |
| 79 | Impact of Online Food Delivery Systems on Dine-out Restaurants Bhavana Madandas Vaishnav, Saketh Ramesh Tiwari | 349 |
| 80 | Virtual Reality: Benefits in Education System Mohammed Bohari, Dhruvil Bambhaniya | 353 |
| 81 | Impact of COVID-19 on IT Industry Malav Shah, Raj Trivedi | 359 |
| 82 | Change in Job Recruitment System Due to Covid 19 Narayan upadhyay | 362 |
| 83 | Post : Covid-19 Impact on Agriculture And Food Security Khushbu Yadav, Brijesh vishwakarma | 365 |
| 84 | Secure Image Backup System Deepak Yadav, Vinay Maurya | 369 |
| 85 | Future of Augmented and Virtual Reality in our Social and Work Life Kunal Baranwal, Hitesh Bhargav | 373 |

| Sr. No. | Research Paper | Page |
|---------|--|------|
| 86 | Study of Dual Sentiment Analysis for polarity shift with two side of one review | 376 |
| | Vaishali Patil | |
| 87 | Internet of Things and its impact on Business Analytics | 382 |
| | Ankit Parekh, Mihir Parmar | |
| 88 | Diabetes Prediction Using Machine Learning Techniques | 388 |
| | Uzma Khan, Mayur Patil | |
| 89 | Automatic Temperature Screening System Preventing from COVID-19 | 393 |
| | Tausif Khan, Altamash Qureshi | |
| 90 | Technical Transformation in Agriculture | 396 |
| | Daksha Shetty | |
| 91 | Green Energy in Crypto-Currency Mining | 401 |
| | Krunal Shinde | |
| 92 | Shell for Ourselves | 407 |
| | Ashish Jaiswal | |
| 93 | Automatic Saline Monitoring System | 413 |
| | Rashmi Angane | |
| 94 | Blockchain-based Electronic Health Record System in India | 416 |
| | Jain Santosh B. | |
| 95 | Face Mask Detection | 419 |
| | Praveen Ashok kumar Maurya, Jenisha Vipin Mehta | |
| 96 | Fast Food & its Impact on Health | 423 |
| | Vinita Sharma | |
| 97 | The Role of Information Technology in the Prevention of Covid-19 | 429 |
| | Amey Sanjay Shingan | |
| 98 | Impact of COVID-19 on Agriculture Sector | 435 |
| | Dipanshu Shrivastav, Jyoti Singh | |
| 99 | Email Spam Classifications Based On Support Vector Machine And Recurrent Neural Network | 441 |
| | Satyendra Shukla, Pawanesh Singh | |
| 100 | Hand Gesture Recognition Based on Computer Vision | 446 |
| | Maurya Niranjana | |
| 101 | MATE- Metro Assistance To Elderly App | 452 |
| | Akshay Paranjape, Tejas Pardeshi | |
| 102 | Irrigation in Agriculture using Drone Technology and IoT Sensors | 455 |
| | Ramchandra Desai, Anmol Dubey | |
| 103 | Review on Artificial Intelligence in Software Testing: Using Automation Testing Method | 460 |
| | Mrs. Rohini Bagul-Ahire | |