6th International Conference on Data Management, Analytics and Innovation

Virtual Conference

14 – 16 January 2022

REPORT

Report Prepared By
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Steering Committee Chair, ICDMAI 2022
Founder Secretary, Society for Data Science

6th International Conference on Data Management, Analytics and Innovation

Virtual Conference | 14 – 16 January 2022

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ACKNOWLEDGEMENT

International Conference on Data Management, Analytics and Innovation (ICDMAI) is a signature conference of Society for Data Science (S4DS). This is the biggest data science conference in Southeast Asia, which were organized in the IT city of Pune, India; Kuala Lumpur, Malaysia; New Delhi, India in past years, but since 2020 it is organized on the virtual platform due to pandemic. We are committed to create a forum which brings academicians, researchers, corporate experts and students on same page. Planning towards ICDMAI 2022 started around 14 months back and the entire core team ensured that we surpass our own bench mark.

These 06 years have been a satisfying journey for all of us, as we could successfully leave our mark in the world of data science. They say, to be a leader one should start early, and exactly that's what we did. When people were just talking about data science, we decided to build the community. Since inception, we could bring 65 doyens of data science as key note speakers and another set of 60 technical experts contributed towards workshops and tutorials. We have seen many Padmashri awardee, Vice Chancellors, Directors, CEOs, MDs, VPs, on our platform. Besides we could engage more than 200 experts as reviewers and session chairs. Till date, we have received around 2194 papers from 50 countries, out of which 412 papers have been presented and published, which is just (18.7%) of submitted paper. The papers we are receiving are from eminent researchers, leading research organization, from corporate houses and defense services. And I am proud to share that this year we have received a paper from current Naval Chief- Admiral Hari Kumar. Not that we had the bright student contributing in the conference, but had his guide Dr. C.P. Ramnarayan, Vice Chancellor, DIAT, Pune, also as our chief guest.

We appreciate the bonhomie and support extended by IBM as a Technical Partner, Wizertech as Knowledge Partner, Springer as Publication Partner as well as Defense Institute of Advanced Technology and NIELIT Guwahati as Academic Partners. The conference of this magnitude was possible due to the consistent and concerted efforts of many good souls. We acknowledge the contribution of our advisory body members, technical programme committee, people from industry and academia, reviewers, session chairs, media, authors and enthusiastic volunteers, who have been instrumental in making this conference possible.

Dr. Neha Sharma
Steering Committee Chair, ICDMAI 2022
Founder Secretary, Society for Data Science

1. EVENT DETAILS

Event Type	:	Research Consortium
Description	:	International Conference
Event Name	:	6th International Conference on Data Management, Analytics and Innovation (ICDMAI 2022)
Venue	:	Virtual Conference
Date	:	14-16 January 2022

2. CONCEPTION OF THE PROGRAMME

We all are aware that the data is available in abundance, and they say it's a new fuel that threatens the old order and those old icons. It is fast replacing finance as the driver of business. However, a true wealth lies in innovations done using data. All the leading companies like apple, google, amazon, facebook, tesla, they all have research centers and research is going on in continuous basis. They have a reason to do so because this is an era of confluence of big data, connectivity and artificial intelligence. This has revolutionized the old industries and created an entirely new industry. Therefore, to prepare ourselves for this global competition, **Sixth International Conference on Data Management, Analytics and Innovation (ICDMAI 2022)** on **14-16 January 2022** was conceptualized. The conference aims to focus on Data Management, Analytics and Innovations associated with it, which we believe would play a pivotal role in making of new digital India, involving researchers from Industry and Academia. The conference would strive to give a thrust to research and make global impact using technology, as well as enable innovations to create positive impact on humanity and economy. Conference is designed to provide great opportunities to learn from and offer quality research work and innovations to academicians, scientists, research scholars, industry experts and students in the field of data management and analytics. This programme is to bring together researchers, engineers and practitioners interested on databases, big data, data mining, data management, data security and other aspects of information systems and technology involving advanced applications of data.

3. OBJECTIVES OF ICDMAI-2022

The three-day International Conference ICDMAI 2022 is designed to provide a common platform to the scientists, professors, research scholars, industry experts and students from all over the globe to share and disseminate knowledge on their original research. The conference would be a gathering of experts to "confer" about their own and each other's work, to hear experts illustrate on their work and to exchange their views on various topics relevant to the conference theme. The notable objectives of ICDMAI 2022:

1. To create an ecosystem of data science community by connecting to like-minded individuals and bringing them together for discussion.
2. To create a platform for the researchers and developers to collaborate and to identify avenues of funding for their project.
3. To organize a keynote sessions by expert from diverse verticals to set the central theme of conference.
4. To arrange pre-conference tutorial sessions and workshops, before the main conference, to set the right context.
5. To organize plenary talks to provide additional research highlights.
6. To arrange demonstrations and workshops on the innovative projects and products by experts from government sector and industry.

7. To provide the platform to present the research work in the form of oral/poster presentation in the field of Machine Learning, Big Data Management, Data Storage-Management-Innovation, Enabling Technologies and Data Science Techniques for handling Epidemic/Pandemic.
8. To arrange discussions on novel ideas and innovations to provide insight on various aspects of evolving technological advances for digitizing India.
9. To discuss the challenges in adopting the technologies, with a view to make recommendations concerning the problems under discussion.

The conference ensured the tangible takeaways for each participant of ICDMAI 2022.

4. CALL FOR PAPERS

Fifth International Conference on Data Management, Analytics and Innovation (ICDMAI – 2022) solicit papers in the areas of Computer Science, Information Technology, Computational Engineering, Electronics and Telecommunication, Electrical, Computer Application and all the relevant disciplines to a common forum. Original, unpublished research papers highlighting specific research domains from all viewpoints are invited from delegates all over the globe. It is planned to publish selected and presented papers in the proceedings with SPRINGER in their prestigious **Lecture Notes on Data Engineering and Communications Technologies, Springer**; which is indexed in Indexed by SCOPUS, INSPEC, EI Compendex. All books published in the series are submitted for consideration in Web of Science. Following are the topics of interest but not limited to:

Track I: MACHINE LEARNING

Algorithms and Models, Feature Engineering, Supervised Learning - Classification, Regression, Unsupervised Learning, Semi-supervised Learning, Association Rule Mining, Recommendation System

Track II: AI & DEEP LEARNING

Heuristic Search, nature inspired search, Fuzzy and Rough Set, Reinforcement Learning, ANN and Deep Neural Networks, RNN, CNN, RBM, Transformer, Auto Encoder, GAN, Transfer Learning, Application in Computer Vision, Natural Language Processing, Time Series Data, Other research Issues and Interdisciplinary applications in Science, Social Science and Humanities

Track III: DATA STORAGE, MANAGEMENT AND INNOVATION

Data Storage, Data warehouse and Data Lakes, Retrieval, Graph database, No SQL, Column based databases Other contemporary issues and Techniques

Track IV: ENABLING TECHNOLOGIES

Big Data, Cloud Computing, IoT, Robotics, Block Chain, Security and Privacy

Track V: DATA SCIENCE TECHNIQUES FOR HANDLING EPIDEMIC, PANDEMIC

Forecasting models for Tracking Number of affected, Image Processing Techniques for detection of disease, Applying Text Analysis to understand research articles to get a better understanding of the Research Literature, Drug Discovery and Genomic Sequencing, Assessing the business and Economic Impact of an Epidemic and Pandemic, Social Media Analytics to understand the Sentiments , Specific issues of Concern Building Conversation Agents to communicate genuine information

*(**Annexure A**-Conference Brochure)*

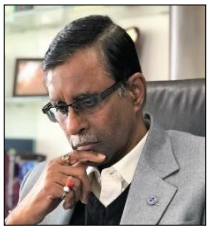
5. CONFERENCE MANAGEMENT COMMITTEE

Conference Management Committee is the key for successful organization of any international conference and ICDMAI-2022 is not an exception to it. The primary role of the committee was to provide independent advice to enhance the quality of the conference regulatory decision-making and lend credibility to the review process. They also recommended/suggested changes and amendments towards the successful execution of the conference. ICDMAI-2022 was fortunate onboard some of the renowned personalities from corporate, academia and research field.

PATRON

Amol Goje
President,
Society for Data Science

GENERAL CHAIRS



Dr. P.K. Sinha
Vice Chancellor and Director, Dr S P Mukherjee International Institute of Information Technology, Raipur, Chhattisgarh

Prof. Valentina E. Balas
Professor, Department of Automatics and Applied Software faculty of Engineering, University of Arad, Romania

STEERING COMMITTEE CHAIRS

Amlan Chakrabarti
Director and Professor, A.K.Choudhury School of Information Technology, University of Calcutta, India

Neha Sharma
Consultant, Tata Consultancy Services
Founder Secretary,
Society for Data Science

EXECUTIVE COMMITTEE OF SOCIETY FOR DATA SCIENCE (S4DS)

Prof. Amol C. Goje is a President of Society of Data Science and has served as a Director, Vidya Pratishthan's Institute of Information Technology (VIIT), Baramati, Pune for last 19 Years. He has a total of over Twenty Five years of experience in the field of Information and Computer Technology (ICT). Dr. Amol's main area of interest is to work for underprivileged people in the rural part of India and his noteworthy innovation is Computer Mobile Van, which are economically sustainable to the rural schools and colleges. He has done lot of research work in Information Technology and its application for rural community. In appreciation to his exemplary work, Dr. Amol has received the Ashoka Fellow award in the year 2002. He is engaged as a Technical advisor on many government and non-government organizations. He was also a member of the Planning Commission, Government of India in Information Technology division. Dr. Goje has received the Marathwada Bhushan Award for spreading the IT education to the masses. He is the member of the Working group on Agricultural Extension Constituted by Planning Commission government of India. He is key player in setting up the Community Training and Learning Centers (CTLC) in Maharashtra, to provide Computer Training to the women from the Self Help groups (SHG). Dr. Goje has received the Manthan (AIF) award successively for two years in Year 2005 and 2006. Governemt of Maharashtra "Maharashtra IT award (IT HRD) in 2008. He is also the President of Community Radio Association (CRA) of India. Recently he has been bestowed with the honor of 'Best Director' of Pune University -2016-17.

Prof Amlan Chakrabarti is presently a Full Professor and Director of the A.K.Choudhury School of Information Technology, University of Calcutta. He is an M.Tech. from University of Calcutta and did his Doctoral research at the Indian Statistical Institute, Kolkata. He was a Post-Doctoral fellow at the School of Engineering, Princeton University, USA during 2011-2012. He is the recipient of DST BOYSCAST fellowship award in the area of Engineering Science in 2011, Indian National Science Academy Visiting Scientist Fellowship in 2014, JSPS Invitation Research Award from Japan in 2016, Erasmus Mundus Leaders Award from European Union in 2017, Hamied Visiting Fellowship University of Cambridge in 2018 and Shiksha Ratna Award from Govt. of West Bengal, in 2018. He is the Team Leader of European Center for Research in Nuclear Science (CERN, Geneva) ALICE-India project for University of Calcutta and also a key member of the CBM-FAIR project at Darmstadt Germany. He is also the Principal Investigator of the Center of Excellence in Systems Biology and Biomedical Engineering, University of Calcutta funded by MHRD (TEQIP-II). He has published around 150 research papers in referred journals and conferences and has graduated 10 Ph.D. students till date. He has been involved in research projects funded by DRDO, DST, DAE, MietY, UGC, Ministry of Social Empowerment, TCS, Intel India and TEQIP.. He is a Sr. Member of IEEE and ACM, Secretary of IEEE CEDA India Chapter and Vice President Society for Data Science. His research interests are: Quantum Computing, VLSI design, Embedded System Design, Computer Vision and Analytics.
https://www.linkedin.com/in/prof-amlan-chakrabarti-7006323a

Neha Sharma is working with Tata Consultancy Services and is also a Founder Secretary of Society for Data Science. Prior to this she has worked as Director of premier Institute of Pune, that run post-graduation courses like MCA and MBA. She is an alumnus of a premier College of Engineering and Technology, Bhubaneshwar and completed her PhD from prestigious Indian Institute of Technology, Dhanbad. She is an ACM Distinguished Speaker, Senior IEEE member and Secretary of IEEE Pune Section. She is an astute academician and has organized several national and international conferences and published several research papers. Besides, she is the brain behind conceptualizing International Conference of Data Management, Analytics and Innovation (ICDMAI), which has become landmark conference in the field of data science. She is the recipient of “Best PhD Thesis Award” and “Best Paper Presenter at International Conference Award” at National Level. She is a well-known figure among the IT circle, and well sought over for her sound knowledge and professional skills. Neha Sharma has been instrumental in integrating teaching with the current needs of the Industry. and steering students towards their bright future. Not only loved by her students, who currently are employed in reputed firms; for her passion to mingle freely with every one, Neha Sharma enjoys the support of her colleagues as well. Her area of interest includes Data Mining, Database Design, Analysis and Design, Artificial intelligence, Big data, Cloud Computing, Block Chain and Data Science.
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https://speakers.acm.org/speakers/sharma_13085

Col Inderjit Singh Barara is a well-known personality in technical world especially in the world of Information System. An experienced Info Systems professional and a TEDx Speaker with experience of more than 27+ year across wide spectrum of areas spanning Info Security, Risk Management, Cyber Security , Cyber Forensics, Cyber Warfare, Expertise in SOC and CERT, Cloud Computing, Big Data , Internet of Things (IoT) including IoT Security, Blockchain, Machine Learning and Artificial Intelligence. He has consistently delivered mission-critical results and seamlessly managed diverse functions related to Project Management, Service Delivery and Key Account Management. He exhibits and models,

influential leadership skills through efficient management of large and dispersed teams while promoting a cooperative working atmosphere. He delegates assignments according to skills and expects implementation of quality strategies. He demonstrates a strong work ethic and encourages teamwork, while clearly defining standards and expectations. He has a strong visioning and strategic thinking ability. He envisions opportunities and converts successfully into business through swift and analytical decision making. Keen eye for innovations in Technology. His Core Competencies are Creating business value supported by technology, Aligning IT with business, thought leadership, IT Transformation, turn around IT organization and improve effectiveness, Managing teams with focus on outcomes, Strategic Outsourcing and cost management, Business Process Improvement & Organizational Efficiency and Effectiveness, leading to applied cross-industry learning towards problem solving, thought leadership for E-Commerce start up. He was awarded Magnificent CIO Award in year 2016 and has been awarded Excellence Award - Cyber Security, Cyber Terrorism and Cyber Warfare for year 2019 by International Police Commission.

Saptarsi Goswami is currently working as an Assistant Professor – Computer Science, Bangabasi Morning College affiliated to University of Calcutta. He has completed his Ph.D in the area of feature selection in the year 2018 from University of Calcutta. He has 16+ years of professional experience, out of which he has spent 10 + years in IT Services Industry in companies like Cognizant, PwC and Tata Infotech. He has briefly worked as a visiting scientist in Iwate Prefectural University, Japan. He has managed large data warehousing programs, as well as took active role in solutioning and designing. He has authored 50 + Journal, conference articles and book chapters. He is working as a meetup Ambassador of Open Data Science Conference (ODSC) for Kolkata Chapter. He conducts regular workshops and organizes meet-ups in the area of data science, machine learning and deep learning. He is working as a co-principal investigator in the domain of renewable energy in a funded project by United Sates Agency of International Development. He is a very active member of the data science community in Kolkata and regularly interacts with different organizations. He actively reviews articles in various journals and conferences.

Atul Bengeri is an industry veteran with over 22 years of experience, having worked in companies like Siemens, Intel & Dell has gained experience in various facets of IT / Digital transformation projects across various business verticals. He has worked on various IT and Digital Transformation projects on design, development and implementations. In his work as Regional Head - Strategic Projects and Smart Cities at Dell-EMC for over three years, he has been well acquainted with the technological and business acumen working on implementation of Smart City Command Centre solutions covering various aspects of Cloud, IoT, Big Data and SMAC. In his previous role at Intel, he worked in identifying technology entrepreneurs and startups that could partner and deliver path breaking solutions whilst being a member of the Ideas2Reality (I2R) program at Intel Technologies. Presently an Entrepreneur, working in the Education & Health data management domain; is the Director of a startup M/s AcumenToday Pvt., Ltd., based out of Pune. He is pursuing his Doctorate in Data Science using Big data and IoT platforms under the Computer Management faculty and has more than two decades of combined experience; Corporate and Academic. As an educator, he teaches several subjects in the Technical fields of Operating Systems, Database, Programming, Big Data, IoT, Data Science and Project Management at the PG level. Have taught specific subjects like Management Information Systems (MIS), Decision Support Systems (DSS), Executive Information Systems (EIS), Data Analytics, Consumer Behaviour, Organizational Behaviour, Marketing Strategy, Branding, AI, ML and programming subjects viz., C, C++, R Programming, Python and HDFS for the PG students. As part of the founding member of Society of Data Science (S4DS) https://s4ds.org/ has been in

the forefront of proliferating and propagating the nuances of Data Science across academicians, corporate and student community across a few countries through various technical programs, sessions, seminars and conferences. Recently conducted the 5th International Conference on Data Management, Analytics and Innovation (ICDMAI 2021) https://www.icdmai.org/. In addition, he has conducted various Entrepreneurship Awareness and Development programs for budding entrepreneurs. He has also been a keynote speaker at various national and international conferences and seminars.

*(**Annexure B**-Conference Technical Programme Committee List)*

6. CONFERENCE OPERATING MODEL - Preparation of the Event

Every conference has its own model of operation in organizing the event. ICDMAI-2022 opted to serve as a vehicle for thought-leaders, academicians, researchers and industry personnel, to have a spirited debate and discussion on many advances and challenges in the field of Data Management, Analytics and Innovation and at the end propose creative solutions to combat the challenges in these areas. Keeping **QUALITY** as single point agenda, we started preparations for this mega event around 14 months back to be hosted at NIELIT, Guwahati. However, when we started planning had no idea that pandemic would last for so long, and we will have to change our plan. Various activities of the conference were identified and accordingly timeline was prepared. Also, various roles for the conference were finalized and the responsibilities were defined. General Chair, Technical Programme Chairs and other committee chairs / members were appointed.

This was a special year as ICDMAI reached its 6th edition; but it was also different because of the prolonged pandemic. Hence, we took a conscious decision to organize it on on-line platform. We realized that virtual world has become new normal now and has presented abundant opportunity to learn and grow together, which can be seamlessly aligned with the objectives of 'ICDMAI'. To keep the momentum, we at Society for Data Science organized many webinars, events, Faculty Development Programs throughout the year and with ICDMAI we tried to reach the peak. Academic and corporate leaders were approached to support the conference and Springer was approached to be the Publication Partner. Experts and researchers from academia and industry were approached to take up the responsibility to review the papers submitted to ICDMAI-2022. Altogether new tracks were decided after rigorous brainstorming sessions to cover all the aspects of Data Management, Analytics and Innovation and to encourage inter-disciplinary research. Besides, we introduced a track on "Data analysis techniques to handle pandemics". A Call for Paper was released with deadline for paper submission, notification and registration. In the 6th Edition of the conference, we tried to keep a perfect blend of participation from Industry and Academia.

The keynotes this time were planned to be more diverse and enriching, whereas workshops had altogether new format, with more emphasis on Hands-on. A diligent effort was made to identify the Keynote Speakers and Resource Persons for Invited Talks, experts for Tutorials / Workshops, Chief Guests, Guest of Honor as well as other Guests. We also planned to provide Distinguished Fellow Award to Industry Experts and Academic Leaders.

An exclusive website (**http://www.icdmai.org**) of the conference was updated with the relevant information, keeping in view the need of communication with researchers, reviewers and guests. The website helped the prospective paper presenters and delegates in getting important details such as guidelines for papers submission, important dates with respects to submission of papers, venue of the conference, etc. We registered with conference management portal, **easychair** to provide a hassle free interface to authors for paper submission, smooth paper review and unbiased paper selection process. The

conference was registered on various conference alert websites and simultaneous email blast was done to reach out to the research community and provide the wide publicity to the mega event.

Conference budget was prepared and sponsorship brochures were sent to prospective industries and academic institutions. Rigorous efforts were taken to outreach to educational institutions, corporates, government and industry for support and patronage. Application to seek permission from Ministry of External Affairs, Home Affairs and Nodal Ministry was submitted was submitted to Indian Government.

The beautifully crafted programme schedule of the conference promised it to be more than a just another "talk shop". Delegates and participants got many insights after listening to the variety of research works which are being carried out across the globe. The participants got an opportunity to listen to many eminent personalities of the world, in their keynote, plenary talks and panel discussion. Besides, the conference showcased workshops and tutorials by leaders from industry and academia. To add on, there was Best Paper Award in all the five tracks. Finally, a press release was given to brief the media and readers about the conference, countries participating, guests, speakers, and quality of paper submitted and other highlights of the conference.

7. DIGNITARIES AT ICDMAI 2022

Padma Shri Sankar K. Pal (https://www.isical.ac.in/~sankar) is a Distinguished Scientist and former Director of Indian Statistical Institute (ISI). He founded the Machine Intelligence Unit and the Center for Soft Computing Research: A National Facility in ISI, Calcutta. He received a Ph.D. in Radio Physics and Electronics from Indian Statistical Institute/ University of Calcutta in 1979, and another Ph.D. in Electrical Engineering along with DIC from Imperial College, University of London in 1982. He joined his Institute (ISI) in 1975 as a CSIR Senior Research Fellow where he became a Full Professor in 1987, Distinguished Scientist in 1998 and the Director for the term 2005-2010. Currently, he is a National Science Chair, Govt. of India, and ISI Emeritus Professor working at ISI, Calcutta. He is also an AICTE nominated AICTE-Distinguished Chair Professor, and a Scholar-in-Residence of IIT Jodhpur. Prof. Pal worked at the University of California, Berkeley and the University of Maryland, College Park in 1986-87; the NASA Johnson Space Center, Houston, Texas in 1990-92 & 1994; and in US Naval Research Laboratory, Washington DC in 2004. Since 1997 he has been a Distinguished Visitor of IEEE Computer Society (USA) for the Asia-Pacific Region, and held several visiting positions in Italy, Poland, Hong Kong and Australian universities. He is a co-author of twenty one books and more than four hundred research publications in the areas of Pattern Recognition and Machine Learning, Image Processing, Data Mining, Soft Computing, Neural Nets, Genetic Algorithms, Fuzzy Sets, Rough Sets, Web Intelligence, Social Networks, Cognitive Machine and Bioinformatics. He has made fundamental contributions to machine intelligence research by developing various modern approaches. He pioneered the development of fuzzy set theory, and neuro-fuzzy and rough-fuzzy computing, in general, and their applications in pattern recognition, image processing, machine learning, knowledge-based systems, and data science and analytics, in particular.

Prof. Pal is a Life Fellow of the IEEE, and Fellow of the World Academy of Sciences (TWAS), International Association for Pattern recognition, International Association of Fuzzy Systems, International Rough Set Society, Asia-Pacific Artificial Intelligence Association (AAIA), and all the four National Academies for Science/Engineering in India. He visited forty five countries as a keynote/ invited speaker or an academic visitor. He has received the 1990 S.S. Bhatnagar Prize (which is the most coveted award for a scientist in

India; 2013 Padma Shri (one of the highest civilian awards) by the President of India, and many prestigious awards in India and abroad including the 1999 G.D. Birla Award; 1998 Om Bhasin Award; 1993 Jawaharlal Nehru Fellowship; 2000 Khwarizmi International Award from the President of Iran; 2000-2001 FICCI Award; 1993 Vikram Sarabhai Research Award; 1993 NASA Tech Brief Award (USA); 1994 IEEE Trans. Neural Networks Outstanding Paper Award; 1995 NASA Patent Application Award (USA); 1997 IETE-R.L. Wadhwa Gold Medal; 2001 INSA-S.H. Zaheer Medal; 2006 Indian Science Congress-P.C. Mahalanobis Birth Centenary Gold Medal from the Prime Minister of India for Lifetime Achievement; 2007 J.C. Bose National Fellowship; 2013 INAE Chair Professorship; 2013 IETE Diamond Jubilee Medal; 2014 IEEE Fellow Class Golden Jubilee Medal; 2015 INAE-S.N. Mitra Award; 2015 DAE Raja Ramanna Fellowship, Govt. of India; 2017 INSA-Jawaharlal Nehru Birth Centenary Lecture award; 2018 INSA-Distinguished Professorial Chair; 2020 SERB-National Science Chair, Govt. of India; and 2021 AICTE-Distinguished Chair Professor.

Prof. Pal is/was an Associate Editor of IEEE Trans. Pattern Analysis and Machine Intelligence (2002-06), IEEE Trans. Neural Networks (1994-98 & 2003-06), Neurocomputing (1995-2005), Pattern Recognition Letters (1993-2011), Int. J. Pattern Recognition & Artificial Intelligence, Information Sciences, Fuzzy Sets and Systems, LNCS Trans. Rough Sets, Journal of Data, Information and Management, Applied Intelligence (2002-12), Fundamenta Informaticae (2003-19), IET Image Processing (2007-19), Int. J. Computational Intelligence and Applications, Ingeniería y Ciencia (2014-15), and J. Intelligent Information Systems (2008-12); Editor-in-Chief, Int. J. Signal Processing, Image Processing and Pattern Recognition (2008-19); a Book Series Editor, Frontiers in Artificial Intelligence and Applications, IOS Press, and Statistical Science and Interdisciplinary Research, World Scientific; a Member, Executive Advisory Editorial Board, IEEE Trans. Fuzzy Systems, Int. Journal on Image and Graphics, Int. Journal of Approximate Reasoning, and Data-Centric Engineering, Cambridge Univ. Press; and a Guest Editor of IEEE Computer, IEEE SMC and Theoretical Computer Science.

Dr. C.P. Ramanarayanan graduated in Mechanical Engineering from Regional Engineering College, Calicut and did his Masters from Indian Institute of Science, Bangalore. He completed his doctoral programme from Department of Energy Systems of Jawaharlal Nehru Technological University (JNTU), Hyderabad. He has illustrious career profile of more than 36 years in Defence Research & Development and Technology Management. He has actively contributed to Underwater propulsion systems, Land propulsion systems and fighter aircraft propulsion during span of service. He retired from DRDO as Distinguished Scientist and Director General (Aeronautical Systems). Prior to that he had enviable assignments like Chief Controller (Research & Development) in HR, Director General (Armament & Combat Engineering), Director, Gas Turbine Research Establishment, Director, Vehicle Research & Development Establishment and Project Director for heavy & light weight torpedo propulsion projects in various locations across the country. He received “Scientist of the year” award 2005 from then Hon’ble Prime Minister, Dr. Manmohan Singh and “Technology Leadership” award 2015 from Hon’ble Defence Minister of India. In addition he had received a lot of awards and citations from various Professional Societies and academic Institutions. He had served as Board of Director and India’s nominee in “International Society for Air Breathing Engines” (ISABE) and nominee Director in board of Hindustan Aeronautics Ltd.,. He was also President / Chairman of Society of Aerospace Quality & Reliability and Aeronautical Society of India, Bangalore. He is a Fellow of Indian National Academy of Engineers, Fellow of Aeronautical Society of India and Fellow of Institution of Engineers. In addition he is a senior life member of many more organizations. He has many Journal papers to his credit and has guided doctoral students and many Post Graduate students in their research work. He likes reading books on understanding human behavior and on lateral thinking.

Biswajit Mohapatra is Partner and Executive Director, Hybrid Cloud Transformation Services at IBM. Biswajit is an alumnus of IIT, Mumbai with more than 25 years of experience in strategy consulting, digital reinvention, technology innovation and practice incubation. He has deep expertise in Blockchain, IoT, AI/ML, Data Analytics, Cyber Security and other exponential technologies. Biswajit is recognized as Global Top 50 Thought Leaders and Influencers on Cloud Computing and Business Leader of The Year 2021 on Cloud Computing. Biswajit received 15+ CIO Awards for his contribution towards IT Innovation. He is DevOps Institute Global Ambassador and AWS APN Ambassador. Biswajit has several patents, publications and is a regular speaker in national and international conferences. He is also Member, Board of Studies for Faculty of Computer Science at Symbiosis University, Board Member IIBA Pune Chapter and Board Advisor to Asian-African Chamber of Commerce and Industry.

Dr. Sundeep Oberoi has 36 years of industry, research and entrepreneurial experience in diverse areas of Information and Communication Technology. He has a wide spectrum of experience in Delivery Management of large and critical programmes, technology development, product development, business development, system integration and management of research laboratories. He has a Ph.D. in Computer Science from I.I.T Bombay, an M.Tech in Computer Science from I.I.T. Delhi and a B.Tech in Chemical Engineering from I.I.T. Kanpur. After a long sting with the Tata Group he now serves as the Chairman of ISO/IEC JTC1/SC7 – "Software and Systems Engineering". He is active in standardization and apart from his role as chair of SC7 he is involved with various other standardization activities. In his last role in TCS, Dr. Sundeep Oberoi served as Global Head of Cybersecurity Services Business Unit. In this role, Dr. Oberoi had direct overall profit and loss responsibility for the unit. The unit was responsible for business acquisition and service delivery of cybersecurity services for all of TCS customers worldwide. He was responsible for security execution in several large Government of India projects like the AWAN project of Indian Army, Passport Seva, MCA, security of EVMs and many other important projects. He was recently recognized as #4 in the top 25 Cybersecurity Executives of 2020 - "The IT Services Report". Apart from his involvement in Software and Systems standardization he has recently been involved in the following professional activities • Adjunct Professor – Center for Policy Studies, IIT Bombay • Current Co-Convenor of IEC – SG12/TF3 "Semantic Interoperability" • Current Convenor of LITDC – Panel 3 of Bureau of Indian Standards • Current Convenor of LITD-14 – Data Management Panel of Bureau of Indian Standards • Served as an active participant of World Economic Forum's "Future of the Internet" project • Served as a member of World Economic Forum's "Global Agenda Council on Cybersecurity" Dr. Oberoi is the author of two technical books and a recent science-fiction novel titled "COVID Nation".

Dinanath Kholkar is Vice President and Global Head of the Analytics & Insights unit of Tata Consultancy Services (TCS). As a Data and Analytics specialist he has been an advisor to client CxOs and Boards of companies in helping them realize the power of data, analytics and Artificial Intelligence (AI). In a career spanning 3 decades in TCS, Dina has held various leadership roles including heading TCS' $2 Billion Business Process Services (BPS) unit and as CEO & MD of TCS eServe. He has been providing industry leadership to the IEEE Pune section for over 15 years and has been re-appointed Chairman for the Section for 2019. Under his leadership, the section is running special projects on Affordable Agriculture, STEM

to STEAM and Smart City Data Hackathon; all significant contributors to Nation development. He is also the member of the NASSCOM BPM council and the member of the Board of Governors of his alma-mater VJTI. As one of the champions for Diversity & Inclusivity he has led from the front on various initiatives.

Pravin Bhagwat is an entrepreneur and a wireless security researcher. He was Co-founder & CTO of Mojo Networks - a product venture which started in year 2003 from Pune and grew to become a leading provider of Cloud Managed Secure Wi-Fi for the global market. In 2018, the company was acquired by Arista.
Pravin started his research career at IBM Thomas J. Watson Research Center and AT&T Labs where he was a lead member of Mobile IP, Wi-Fi and Bluetooth research teams. He has numerous research papers and 27 patents to his credit. Pravin is also the recipient of IIT Kanpur Distinguished Alumnus Award of 2019. For the past seven years, Pravin has been pursuing his passion for nature conservation by reforesting a large tract of barren land near Pune. This project has now grown into a non-profit, social enterprise named 14 Trees Founda_on (https://14trees.org). Pravin has B.Tech. in Computer Science from IIT Kanpur, India and MS/PhD in computer science from the University of Maryland, College Park, USA.

Amitav Malik is a former Indian defence scientist turned environmental expert. He is the founder director of the Laser Science and Technology Centre, Defence Research and Development Organization (DRDO), India, known for his expertise in the defence system design and development. He is a trustee of the Pune International Centre and head of its vertical on Energy Environment and Climate Change (EECC) that gives environmental policy advisory to the Government and Industry experts. He also founded the Climate Collective Pune, an informal group of astute climate experts in Pune. Prof. Mallik was honored by the Government of India, in 2002, with a Padma Shri.

Dr. Priyadarshini Karve completed Ph.D. in Physics from University of Pune, in 1998. Her first research project resulted in the development of a process for converting agricultural waste into charcoal. The technology won the Ashden Award for Renewable Energy in 2002. In a career spanning more than 20 years, Dr. Karve invented a number of improved biomass burning cooking devices, to reduce smoke in the kitchen and dependence on firewood for domestic cooking in rural areas. She has also worked on “decentralized organic waste to fuel” technologies. She developed a methodology for technology selection and promotion to improve adoption of clean cooking energy devices by end users. In the past 5 years or so, her work has also focused on devising and promoting strategies for low carbon, sustainable urbanization.

She has published more than 30 research papers in peer reviewed journals, and has contributed to technical books. In 2005, she started Samuchit Enviro Tech, a social enterprise that promotes environmentally sustainable energy and lifestyle products. Dr. Karve, who is the Managing Director of Samuchit, has also invented an easy-to-use Samuchit Carbon Footprint Calculator for Urban Indians, and conductsworkshops on climate friendly lifestyle, sustainable urbanization, etc. She is also a Founder Director of OrjaBox LLP, a green start-up, from 2021.

Dr. Karve is actively involved in national and international organizations working in the field of renewable energy, equitable sustainable development, climate resilience, etc. Over the years she has successfully led numerous short term funded projects based on scientific and technological research, technology dissemination and commercialization, third party assessments, and policy advocacy. She is a Founder Member and a Member of the Board of Directors of Clean Energy Access Network (CLEAN), a registered society in India, and serves on the Governing and Advisory Bodies of a number of other national and international organizations. She is also the National Convener of Indian Network on Ethics and Climate Change (INECC). She teaches courses on Sustainability, Physics, and Big History (History of the Universe) at Symbiosis International University. In addition, she is co-editor of 'Shaikshanik Sandarbh' a Marathi language bi-monthly on Science and Education, and a member of the Board of Editors for 'Confluence: Journal of Interdisciplinary Studies'.

Her work has been honored by several national and international awards, including World Technology Award in Environment Category 2005 (by World Technology Network, New York), Sahyadri Hirakani Award 2011 (by Mumbai Doordarshan Television Channel, India), Vasundhara Award 2014 (by Kirloskar Vasundhara International Environmental Film Festival), "Unch Maza Zoka" Award 2015 in Environment Category (by Zee TV Marathi Television Channel, India), etc. She is a TEDx speaker and has also been featured in a number of national and international periodicals, publications, radio and television programmes, and podcasts.

Nilesh Oak is an author, researcher, speaker, and corporate consultant. He holds BS, MS in Chemical Engineering, and an executive MBA. He has published 3 books and writes extensively on ancient Indian history. Nilesh helps Indians become aware of the deep antiquity of Indian civilization so that they truly comprehend, present, or defend the grand narrative of India unlike most other Indic researchers because he builds it through scientific acumen and logical reasoning. He is adjunct faculty at the Institute of Advanced Sciences, Dartmouth, MA, USA.

Thomas Day is an economist and recognized industry expert in banking, credit portfolio management, finance, capital markets, and risk management. His focus has been credit underwriting and risk review, enterprise risk management, P&L management, business and product development, team leadership, capital markets, financial operations and model risk management, and is an industry thought-leader with over 30 years of banking, financial and technology industry experience. Thomas was also a senior supervisor for the Federal Reserve and a voting member on the TARP Capital Committee during the Global Financial Crisis for the US Treasury.

Functional Experience: Commercial and Retail Banking, Trading Activities, Governance, Risk and Compliance (ERM)

Domain Experience: Thomas has spent a large portion of his career in the CCO, CRO and CFO verticals, as well as a team leader for large complex risk and compliance teams within banks, technology firms, and as a Senior Officer for the US Treasury, the OCC and Federal Reserve System. His areas of expertise include risk identification and management, credit portfolio and balance sheet management, treasury operations, discretionary investment portfolios and derivatives, model risk management, liquidity risk, financial technology, as well as internal audit, advisory, and assurance processes.

Aninda Bose is presently working as Executive Editor with Springer Nature. Mr. Bose is part of the Global Acquisition Team at Springer Nature and responsible for acquisition of scientific content across the globe. He is responsible for acquisition of content in Interdisciplinary Applied Sciences. He has more than 27 years of industrial experience in marketing and different fields of publishing. Mr. Bose has completed Masters in Organic Chemistry from Delhi University and Masters in Marketing Research from Symbiosis Institute of Management Studies, Pune. Mr. Bose has delivered more than 175 invited talks on Scientific Writing and Publishing Ethics in reputed Universities, International Conferences and Author Workshops. He has published books for secondary level in Chemistry and is a member of American Chemical Society, USA.

Gopi Varadarajulu is a Senior Technical Staff Member & Architect in the IBM Data and AI portfolio. He has an insider view of design & development of various IBM Data & AI technologies such Watson Studio, Watson Machine Learning & IBM Cloud Private for Data components. He has held various design & engineering responsibilities for the past 16 years and has 5 patents in the areas of Privacy, Secure Data Analysis, Database management systems and operating systems.

Dr. Mini Thomas is the first women Director of NIT Tiruchirappalli (2016-21) and the founder Director of the Centre for Innovation and Entrepreneurship (CIE), Jamia Millia Islamia (JMI), and presently a Professor in the Department of Electrical Engineering, Faculty of Engineering and Technology, JMI. She has handled many important roles and rolled out many strategic plans during her tenure at JMI and NIT Trichy. She was the Central Public Information officer (CPIO) of JMI from 2008- 2014 and the Head of the Department of Electrical Engineering from 2005-2008. Dr. Thomas was a faculty member at Delhi College of Engineering, Delhi (now DTU), and at the REC (now NIT), Calicut, Kerala before joining Jamia. She graduated from University of Kerala (Gold Medalist), completed her M. Tech from IIT Madras (Gold Medalist, Siemen's prize) & PhD from IIT Delhi, India, all in Electrical Engineering.

At NIT Trichy, Dr. Thomas and her team, with the inputs from all stakeholders, developed the Strategic Plan for the Institute, which aims to propel the Institute to be among the top Technical Institutes in the world. Inching towards this goal, the position of the Institute improved to 9th from 12th in 'Engineering', and to 24th from 34th in 'overall' position, in the NIRF India rankings over the last 3 years. With her keen interest, able guidance and leadership, NIT Trichy has set up the first of its kind Centre for Excellence in manufacturing in 2018, at an investment of Rs. 190 Crores, in collaboration with Siemens Industry Software, for Research and Training. The research publications, projects and consultancy at the Institute has improved substantially with consistent encouragement and recognition of excellence in multiple ways. Patent filing and publication saw a surge in the last two years with an IPR policy in place. The new offices of the Alumni Relations, International Relations, public relations and media are taking the Institute to greater collaborations and visibility.

Dr. Thomas is the President of Shastri-Indo Canadian Institute (SICI), a bi-national organization supported by

MHRD, GoI, that promotes understanding between India and Canada through academic activities and exchanges. She is currently on the Board of Directors of the IUSSTF- Indo-US Science and Technology Forum. Dr. Thomas has done extensive research work in the area of Supervisory Control and Data Acquisition (SCADA) systems, Substation & Distribution Automation and Smart Grid. She has published over 130 research papers in International Journals and Conferences of repute, supervised 16 Ph. Ds, has successfully completed many research projects, and is the coordinator of the Special Assistance Program (SAP) on Power System Automation from UGC, Government of India. She is also a reviewer of reputed journals in her field.

Dr. Thomas has set up the first of its kind SCADA laboratory and Substation Automation (SA) Laboratory at JMI, with Industry involvement, which is bringing laurels to the University in terms of research publications, MOUs, and training opportunities and more importantly, enhanced image among the world power engineering fraternity. She, as the founder coordinator, drafted the curriculum, started a unique, first full-time, M Tech program in the Faculty of Engineering & Technology, JMI, in 2003 in Electrical Power System Management, with industry participation, which has courses on power automation and novel hands-on training. For these contributions, Dr. Thomas won the IEEE Educational Activities Board (EAB) Meritorious Achievement Award 2015 for 'Design and Development of curriculum and laboratory facilities for professionals and students in the electric utility industry".

She is the author of the text book 'Power System SCADA and Smart Grids' by CRC Press, Taylor and Francis, USA and a book chapter in the McGraw hill Standard Handbook of Electrical Engineers, 17th edition, 2018. She is a 'Distinguished Lecturer' of IEEE Power & Energy Society. As the founder Director of Centre for Innovation and Entrepreneurship at Jamia, Dr. Thomas had created an environment of Innovation and Entrepreneurship which has led to the setting up of a Design Innovation Centre, a Livelihood Business Incubator and doubling the number of patents filed.

Dr. Thomas received the ‘Career Award’ for young teachers, Govt. of India, won the IEEE Power and Energy Society Outstanding Chapter Chair award 2013, IEEE Member and Geographic Activities (MGA) Innovation award 2008, IEEE Outstanding Volunteer award 2005, IEEE Outstanding Branch counselor award 2002 and Power and Energy Society (PES) Outstanding Chapter Engineer award. She is a certified trainer for ‘Capacity building of Women managers in higher education’, by UGC and has conducted many training sessions for Women empowerment.

Dr. Thomas is very active in Professional societies and she is among a handful from Asia Pacific to be on the global boards of IEEE with experience over a decade on the international boards and committees. Dr. Thomas has traveled extensively around the globe, delivered lectures in prestigious universities and has interacted with technical experts from all over the world.

Subhobroto Chakroborty Is a Founder of TheDigitalfellow & TheDigitalFellow Academy, A student of Digital Marketing for the past 27+ years. A growth hacker, having cross industry experience, has successfully launched, managed & advised more than 120+ Top National and International brands in IT, Media, TV, FMCG, Durables, Agro, Pharma Hospitality, Service, Manufacturing, Fashion & Lifestyle, Luxury, Telecom, etc. To name a few he has been invited to serve as a Keynote Speaker at Global digital marketing summit , Branding 360 Hong Kong, World Trade Centre Kochi, Bangalore, Chennai,SMW2016 Mumbai, ACEF Mumbai 2017, Jury member for MMA (Mobile Marketing Association) 2015-16, Chair the advisory board in DMAi (Digital

Marketing Association - Asia) APAC 2016/17, Jury for Asia Customer Engagement ACEF 2016/17, Presenter at the Digital Animation Fair in China, Digital Associations at IEC (India Entrepreneurs Club),) & Guest speaker at numerous B-Schools includesIIM's, IMT- Nagpur & XIMB

Thedigitalfellow.com is a Premium Business Consulting Firm helping businesses get transformed digitally to grow in terms of ideas, reach and revenue. We partner with businesses to overcome challenges around the domains of resources, processes, product innovation through digital perspective and technology.

He has also trained over 150 CXOs and General Managers in the ever-evolving domain of Digital Marketing. He has worked with a premium American online education institution for their global client training programme across four continents. He is also a Strategic Consultant for various start-ups and large organizations in India. True to his firm belief in sharing his expertise and experience with others, he gives talks and conducts workshops in various academic and corporate gatherings, including the Top B-Schools like the IIMs.

Dr.Valentina E. Balas is currently Full Professor in the Department of Automatics and Applied Software at the Faculty of Engineering, “Aurel Vlaicu” University of Arad, Romania. She holds a Ph.D. in Applied Electronics and Telecommunications from Polytechnic University of Timisoara. Dr. Balas is author of more than 200 research papers in refereed journals and International Conferences. Her research interests are in Intelligent Systems, Fuzzy Control, Soft Computing, Smart Sensors, Information Fusion, Modeling and Simulation. She is the Editor-in Chief to International Journal of Advanced Intelligence Paradigms (IJAIP) and to International Journal of Computational Systems Engineering (IJCSysE), member in Editorial Board member of several national and international journals and is evaluator expert for national and international projects. She served as General Chair of the International Workshop Soft Computing and Applications in seven editions 2005-2016 held in Romania and Hungary. Dr. Balas participated in many international conferences as Organizer, Session Chair and member in International Program Committee. She is a member of EUSFLAT, ACM and a Senior Member IEEE, member in TC – Fuzzy Systems (IEEE CIS), member in TC - Emergent Technologies (IEEE CIS), member in TC – Soft Computing (IEEE SMCS). Dr. Balas was Vice-president (Awards) of IFSA International Fuzzy Systems Association Council (2013-2015) and is a Join Secretary of Joint Secretary of the Governing Council of Forum for Interdisciplinary Mathematics (FIM), - A Multidisciplinary Academic Body, India.

Dr. Mani Madhukar has 16+ years of experience in IT with exposure to both industry and academia. He holds a doctorate in Computer Engineering and an Executive program in Management from McIntire School of Commerce, University of Virginia. Passionate about learning and sharing knowledge, his work areas includes Academic Program Management, Cloud Application Development, Mentoring Startups, Curriculum Design, Project Management, Electronic Content Management, Competency Development, IBM Cloud Pre-sales for Infrastructure & Platform Services.As part of IBM he has worked in various roles across different technologies including Cloud, Blockchain, Internet of Things, Data Science, DevOps and IBM Watson. Mani to his credit has patent on Blockchain, research papers in national and international conferences and journals including SCI publications, chapter contribution to books including Springer, reviewer to few journals and authored blogs on Cloud, Big Data, Machine Learning, Sentiment Analysis, IBM

Watson, Recommender Systems. Mani represents IBM in various forums as technical expert /panelist on various technology areas and advisor to few incubation centers and startups. He mentors online community on Blockchain and Cloud, supporting sessions on IBM Blockchain/Hyperledger and IBM Cloud. He is also an expert on curriculum design and part of many Academic councils/Board of Studies at various academic bodies/universities including AICTE, NITTTR and many more. Mani is associated with few universities as Adjunct faculty, research co-guide and mentor to student projects.

Pradip Sinha is a Senior Data & Analytics Consultant and an Enterprise Architect at Tata Consultancy Services (TCS). He started his professional career with TCS in 1997 and has more than 24 years of experience in the industry. He is a key member of the data and analytics Centre of Excellence at TCS and has been an integral part in the evolutionary journey of TCS DATOM™, a patented "Data and Analytics Target Operating Model" offering from TCS. He currently leads the execution portfolio of Consulting & Advisory function for TCS's Analytics & Insights (A&I) Group. He is also TCS Program Head of Tata Group Data Literacy journey which had been formalized nearly three years back with the TCS partnership with Tata Business Excellence Group. He has led large strategic Data & Analytics programs, delivered business critical enterprise-scale analytics solutions, headed delivery and operations for global customers like BT, Experian, J&J, Amgen and many more. He has seen the whole spectrum of solutions in the data & analytics space, ranging across custom & packaged systems on various platforms. His passion these days is to improvise Data & Analytics operating models and processes through reorganizing or automating, creating values, and making significant and tangible improvement of outcome-based business performance. He has a Master of Technology in Electrical Engineering from Indian Institute of Technology (IIT), Kharagpur, India. A self-proclaimed tea aficionado, Pradip loves to explore nature, especially hills.

Dr. K. P. Ray is M. Tech in Microwave Electronics from University of Delhi and PhD from Department of Electrical Engineering IIT, Bombay. Presently he is a Professor, Director School of Radar Technologyand Head of the Dept of Electronics Engineering, Defence Institute of Advanced Technology (DIAT), DRDO, Pune. Prior to joining DIAT in 2016, he was the Programme Director of SAMEER (MeitY) Mumbai, wherein he joined SAMEER (TIFR) in 1985 and workedfor over 31 years in the areas of Electromagnetics, Radars, RF and microwave systems/components and developed expertise in the design of antenna elements/arrays and high-power RF/microwave sources for RADAR, scientific and industrial applications. He has successfully executed over 50 projects sponsored by various Govt. agencies (DRDO/MOD, ISRO/DOS, DAE, DST/DSIR/TIFAC, Meity, DBT, IMD, BHEL, etc.) and many industries in the capacity of main designer, a chief investigator and a project manager, etc. Recently, he developed A Microwave Sterilizer, 'ATULYA' to neutralize COVID19. He was a guest/invited//adjunct faculty in Electrical Engineering Dept at IIT, Bombay, Goa Engineering College, University of Mumbai and CEERI (CSIR) Pilani for post graduate courses. He has guided 10 Ph D students, more than 130M.Tech students and evaluated more than 25 Ph D Thesis. He has co-authored a book with Prof G. Kumar for Artech House, USA and published over 480research papers in international/national journals and conference proceedings, which has earned him approx. 7350 citations. He holds 3 patents, earned 10 Transfer of Technology (ToT) for commercialization and filed 5 patents. He has been in advisory capacity for many engineering colleges, Polytechnic, international/national conferences, chaired many sessions and delivered more than 120 invited talks, which also includes "First Abdul Kalam Memorial Lecture" at Interim Test Range (ITR), DRDO, Chandipur 2018 and "Ram Lal Wadhwa Lectures 2018.He is a

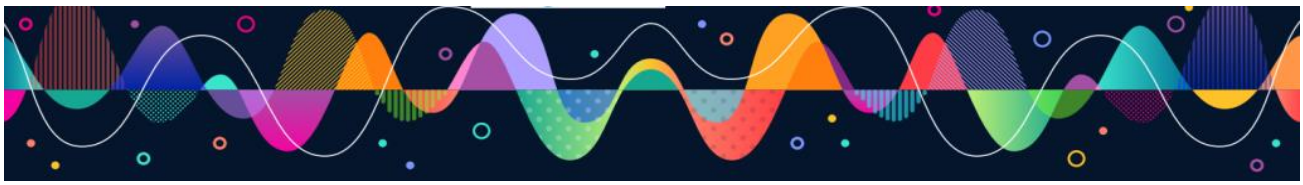
member of many national level scientific committees of various ministries and departments. Heis an associate editor of International Journal on RF and Microwave Computer-Aided Engineering, John Wiley, and prolific reviewer of IEEE TAP, AWPS, IEEE Access, Electronics Letter, IET (Formerly IEE, UK), International Journal of Antennas and Propagation (USA), PIERS (USA), International Journal of electronics (USA), Journal of Electromagnetic Waves and Applications (USA), International Journal of Microwave and Optical Technology (IJMOT) USA, International Journal of Microwave Science and Technology Hindwai, AEU Elsevier, SADHNA Springer, IETE (India) and many international/national conferences/symposium. He is a fellow of IETE, a fellow of VEDAS, a senior member of IEEE (USA), and life member of Instrument society of India and Engineers of EMI/EMC society of India. He received many awards including most coveted IETE-Ram Lal Wadhwa Award 2018, IETE-Ranjna Pal Memorial Award 2014 and several research paper awards.

Dr. Sriparna Saha received the M.Tech and Ph.D. degrees in computer science from Indian Statistical Institute Kolkata, India, in the years 2005 and 2011, respectively. She is currently serving as an Associate Professor in the Department of Computer Science and Engineering, Indian Institute of Technology Patna, India. She is the author of a book published by Springer-Verlag on the topic of unsupervised classification. She has authored or coauthored more than 300 papers. Her current research interests include machine learning, deep learning, bioinformatics, natural language processing, multiobjective optimization, and biomedical information extraction. Her h-index is 30 and the total citation count of her papers is 4969 (according to Google scholar). She is also a senior member of IEEE. She is the recipient of Lt Rashi Roy Memorial Gold Medal from the Indian Statistical Institute for outstanding performance in MTech (computer science), Google India Women in Engineering Award, 2008, NASI YOUNG SCIENTIST PLATINUM JUBILEE AWARD 2016, BIRD Award 2016, IEI Young Engineers' Award 2016, SERB WOMEN IN EXCELLENCE AWARD 2018, SERB Early Career Research Award 2018, Humboldt Research Fellowship, Indo-U.S. Fellowship for Women in STEMM (WISTEMM) Women Overseas Fellowship program 2018 and CNRS fellowship. She has visited the University of Heidelberg, Germany, University of Trento, Italy, University of Caen, France, University of Mainz, Germany, University of Kyoto, Japan, and University of California San Diego as a visiting scientist. Her research publications have been published in reputed forums like IEEE/ACM Transactions, ACL, COLING, SIGIR, ECIR, ICPR, ECAI, and many more. She won the best paper awards in the CLINICAL-NLP workshop of COLING 2016, IEEE-INDICON 2015, International Conference on Advances in Computing, Communications and Informatics (ICACCI 2012). She is currently also serving as the Associate Editor of IEEE/ACM Transactions on Computational Biology and Bioinformatics, ACM Transactions on Asian and Low-Resource Language Information Processing (TALLIP), Expert Systems with Applications, PLOS ONE. She is in the editorial board of IEEE Internet Computing (This is one of the top magazines in the area of Internet technologies (IC's 2019 impact factor is 4.231 - 2-year Impact Factor = 5.277 - H-index = 103);), Engineering Applications of Artificial Intelligence, Elsevier journal (impact factor: 6.2, h5-index: 65).

Suvarna Bhonde is a Lead Datom consultant at Tata Consultancy Services (TCS). She started her professional career with TCS in Dec 2000 and has more than 21 years of experience in Data and Analytics space. She has been an integral member of various data & analytics practices in TCS as they evolved over the last two decades. In this period, Suvarna exhibited roles of Product Engineering Lead, Innovation Consultant, Solution Architect, Delivery Lead, Data Architect, Enterprise Data Management Portfolio Lead, Data Integration Portfolio Lead, etc. She has led and been a part of various successful programs for leading global

organizations across various industry domains such as Energy & Resources, Manufacturing, Life Sciences, Retail and Telecommunication. In addition to helping Customers define & realize their strategies, she has also led multiple Information Management, ETL solution offerings branded under BIDS™ and AI based products under Decision Fabric brands of TCS. She has seen the whole spectrum of solutions in the data & analytics space, ranging from AI based product development, Data Strategy services, Data and Analytics implementation using packaged products as well as custom solutions, etc. She is passionate about providing right mix of Digital and core technologies for simplifying the business processes. She has a Bachelor of Engineering in Electronics and Telecommunication from Mumbai University, Mumbai, India. In her spare time, Suvarna likes to read sci-fi fiction, listen to music, and meditate.

Lavina Mhatre has more than 20 years of experience in Data and Analytics. Currently she is part of the Data & Analytics Strategy Services team and is a lead DATOM Consultant. As part of the role, she leads Data Strategy consulting for customers around the globe and helps build Customer centric solutions. She has been actively contributing to build and enhance the TCS solution accelerators in data and analytics space and lead the development efforts. She has played several key customer facing roles for leading Manufacturing, Banking and Life Science customers and was actively involved in their Data & Analytics transformation journeys. Lavina had played the roles of solution architect and program manager of large to very large Data & Analytics initiatives for customers like Ingersoll Rand, General Motors, Cummins, Large US based Pharma, Large US based Bank etc. Lavina's key forte has been Information Management and she has been actively driving Data Maturity Assessments for the Tata Group companies as well as TCS's global clientele. Data Literacy and driving data centricity have been prominent areas of focus. Lavina holds Bachelor of Engineering degree in Computer Science from Mumbai University. Her hobbies include sketching, listening to music and reading. She is based out of Mumbai.



8. VENUE OF ICDMAI 2022

Due to pandemic, we decided to organize ICDMAI 2021 on a virtual platform – Zoom. Zoom helps businesses and organizations bring their teams together in a frictionless environment to get more done. Their easy, reliable cloud platform for video, voice, content sharing, and chat runs across mobile devices, desktops, telephones, and room systems. Zoom is publicly traded on Nasdaq (ZM) and headquartered in San Jose, California.

Figure 1. Magic Quadrant for Meeting Solutions

Source: Gartner (October 2020)

9. PARTNERS FOR ICDMAI 2022

IBM India Private Limited is the Indian subsidiary of IBM. It has facilities in Bengaluru, Ahmedabad, Delhi, Kolkata, Mumbai, Chennai, Pune, Gurg aon, Noida and Hyderabad. IBM is the multinational company with the largest number of employees in India.

Springer is a leading global scientific, technical and medical portfolio, providing researchers in academia, scientific institutions and corporate R&D departments with quality content through innovative information, products and services. Springer has one of the strongest STM and HSS eBook collections and archives, as well as a comprehensive range of hybrid and open access journals. The publication partner for the conference is their prestigious LNDECT Series.

Wizertech Informatics Pvt Ltd is an ISO9001: 2008 certified IT Infrastructure Consultancy & System Integration company headquartered in Kolkata, India, with a strong presence in more than a dozen key cities of India. Since inception, a decade ago, we have diversified extensively to evolve into one of the largest System Integrators in Eastern India. Over the decade, we have augmented technical manpower, and gained experience in multiple domains. This coupled with an ever-increasing list of satisfied customers, has positioned us among the coveted names in the arena.

NIELIT Guwahati is in operation w.e.f. 5th August'1998, in the name & style of "CEDTI Tezpur" after signing of an MOU between Tezpur University & erstwhile Dept. of Electronics, Govt. of India. The centre started its operations from the Tezpur University campus at Na Paam near Tezpur. However, due to operational difficulties, the location was later shifted to Law College Campus, Tezpur. Presently NIELIT has established a Centre in all the state capitals of the NE region and accordingly the jurisdiction of NIELIT Guwahati is now restricted to the state of Assam only.

Defence Institute of Advanced Technology (DIAT) is the premier engineering training institute under the Department of Defence Research & Development, Ministry of Defence, Government of India. DIAT (DU) is specialized in the training of officers of Defence Research Organizations, IOFS (Indian Ordnance Factories), Defence PSUs (Like Hindustan Aeronautics Limited, Bharat Electronics, Bharat Dynamics Limited), ship building agencies like Garden Reach Shipbuilders & Engineers, Cochin and Goa Shipyards, Mazagon Dock Shipbuilders and armed forces of friendly countries (like Sri Lanka and Afghanistan,) and other central and state government agencies.

10. ITINERARY

ICDMAI 2022

6th INTERNATIONAL CONFERENCE ON DATA MANAGEMENT, ANALYTICS AND INNOVATION

(14-16 January 2022)

Venue: Virtual Platform

Date/Time		Min(s)	Pre Conference Workshop / Tutorial | Venue: Zoom Meeting Room
FRIDAY 14-January 2022	09:00 - 10:00	60	Registration and Networking
	10:00–11:30	90	Mani Madhukar, *IBM* | Topic: Using AI for AI
	11:30-13:00	90	Pradip Sinha, *Head - Strategy & Incubation Kolkata DC, Data & Analytics, D&AP, A&I, TCS* Topic: Business Excellence Through Data Centricity
	13:00 - 14:00	60	Break
	14:00 - 15:30	90	K.P. Ray, Director, School of Radar Technology, Head, EE Dept & Chief Public Information Officer (CPIO), Defence Institute of Advanced Technology (DIAT) Topic: ATULYA: High Power Microwave System to neutralize COVID-19 'Concept to Commercialization'
	15:30 - 17:00	90	Sriparna Saha, *Indian Institute of Technology, Patna* | Topic: *Summarization Systems*
	16:00 - 16:15	15	Session Snapshot
			ICDMAI 2021 - Day 1 | Venue: Zoom Meeting Room
SATURDAY 15-January-2021	09:00 - 09:45	45	Registration & Networking
	09:45 - 11:00	75	**INAUGURATION FUNCTION - Live Session**
	11:00 - 11:30	30	Keynote Address1: PadmaShri Sankar Kumar Pal -*National Science Chair, Distinguished Scientist &Former Director, Indian Statistical Institute* Topic: Pattern Recognition, Machine Intelligence to Data Science: Evolution and Challenges
	11:30 - 12:00	30	Keynote Address 2 : C. P. Ramanarayanan, FNAE, FAeSI, FIE - *Vice Chancellor Defence Institute of Advanced Technology (DIAT), Pune* Topic: Quantum Technology - Opportunities & Challenges
	12:00 - 12:15	15	Session Snapshot | Networking | Break | ICDMAI Exhibitions

		Venue	Virtual Room A	Virtual Room B	Virtual Room C	Virtual Room D	
	12:15 - 13:15	Session 1	6A Track 1 MACHINE LEARNING	6B Track 1 MACHINE LEARNING	6C Track 2 AI & DEEP LEARNING	6 D Track 2 AI & DEEP LEARNING	
	13:15 - 14:15	60	Session Snapshot | Networking | Break | ICDMAI Exhibitions				
	14:15 - 14:45	30	Keynote Address 1: Biswajit Mohapatra, *Partner and Executive Director, IBM* Topic: Re-Thinking Data and AI for the Cognitive Future				
	14:45 - 15:15	30	Keynote Address 2: Sundeep Oberoi, *Former Global Head of Cybersecurity Business Unit* Topic: Contemporary Challenges in Data Policy and Governance				
	15:15 - 16:00	45	Panel Discussion: Data Driven Climate Literacy and Actionable Insights Moderator - Dinanath Kholkar, Vice President, Global Head of Analytics & Insights, Tata Consultancy Services. Panelist: Padmashri Amitav Mallik, Head, Energy Environment and Climate Change (EECC) & Founder, Climate Collective, Pune Dr. Priyadarshini Karve - Managing Director, Samuchit Enviro Tech; National Convener, Indian Network on Ethics and Climate Change (INECC) Dr. Pravin Bhagwat, Founder, 14 Trees Foundation				

		Venue	Virtual Room A	Virtual Room B	Virtual Room C	Virtual Room D	Virtual Room E
	16:00 - 17:15	Session 2	10A Track 1 MACHINE LEARNING	10B Track 1 MACHINE LEARNING	10C Track 2 AI & DEEP LEARNING	10D Track 4 ENABLING TECHNOLOGIES AND APPLICATIONS	10E Track 3 DATA STORAGE, MANAGEMENT AND INNOVATION & Track 5 DATA SCIENCE TECHNIQUES FOR HANDLING EPIDEMIC, PANDEMIC
	17:15 - 17:30	15	Session Snapshot | Networking | Break | ICDMAI Exhibitions				
			ICDMAI 2021 - Day 2 | Venue: Zoom Meeting Room				
SUNDAY 16-January-2021	09:00 - 09:30	30	Registration & Networking				
	09:30 - 10:00	30	Keynote Address 1: Nilesh Oak - *Author, Researcher, Speaker, Corporate Consultant & Adjunct Faculty - Institute of Advanced Sciences, Dartmouth, MA, USA* Topic: Data mining - intellectual and psychological integrity				
	10:00 - 10.30	30	Keynote Address 2: Thomas Day, *Managing partner, Business Analytics Advisory, Risk Regulatory and Compliance, TCS* Topic: Digitizing Banking: The Role of Permissioned Blockchains				
	10:30 - 11:00	30	Plenary Session by Publication Partner: Aninda Bose - *Senior Publishing Editor, Springer India Pvt. Ltd.* Topic: Publishing Ethics and Author Services				

		Venue	Virtual Room A	Virtual Room B	Virtual Room C	Virtual Room D	
	11:00 - 12:00	Session 3	14A Track 1 MACHINE LEARNING	14B Track 1 MACHINE LEARNING	14C Track 2 AI & DEEP LEARNING	Students Paper	
	12:00 - 12:10	10	Session Snapshot | Networking | Break | ICDMAI Exhibitions				
	12:10 -12:40	30	Keynote Address 1: Gopi Varadarajulu, *Senior Technical Staff Member & Architect, IBM Data and AI Portfolio* *Topic:* Secure Data Science Practice - Is this practical!				
	12:40 -13:10	30	Keynote Address 2: Mini Thomas - *Professor, Dept of EE, Jamia Millia Islamia & Former Director. NIT Tiruchirappalli* Topic: Big Data Applications in Power Systems				
	13:10 - 14:10	60	Session Snapshot | Networking | Break | ICDMAI Exhibitions				
			Valedictory Session | Venue: Zoom Meeting Room				
	14:10 - 14:40	30	Valedictory Keynote Address 1: Subhobroto Chakraborty, *Founder, TheDigitalFellow & TheDigitalFellow Academy* Topic: Data Drives Decision				
	14:40 - 15:10	30	Valedictory Keynote Address 2: Valentina Balas *Professor, University of Arad, Romania* Topic: Multidisciplinary Soft Computing Techniques and Applications				
	15:10 - 15:30	20	**Awards Distribution Ceremony**				

11. EXECUTIVE SUMMARY

Day 01: 14 January 2022

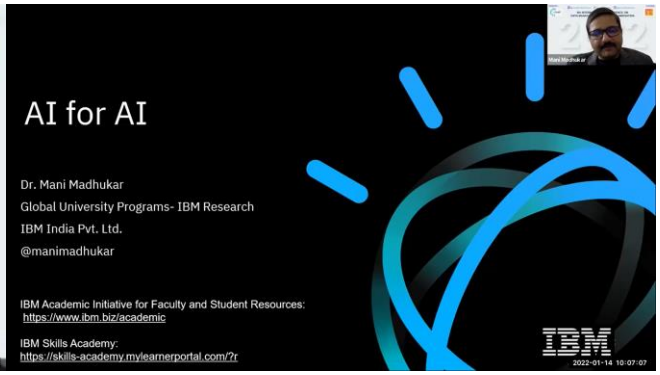
Pre-Conference Workshops / Tutorials

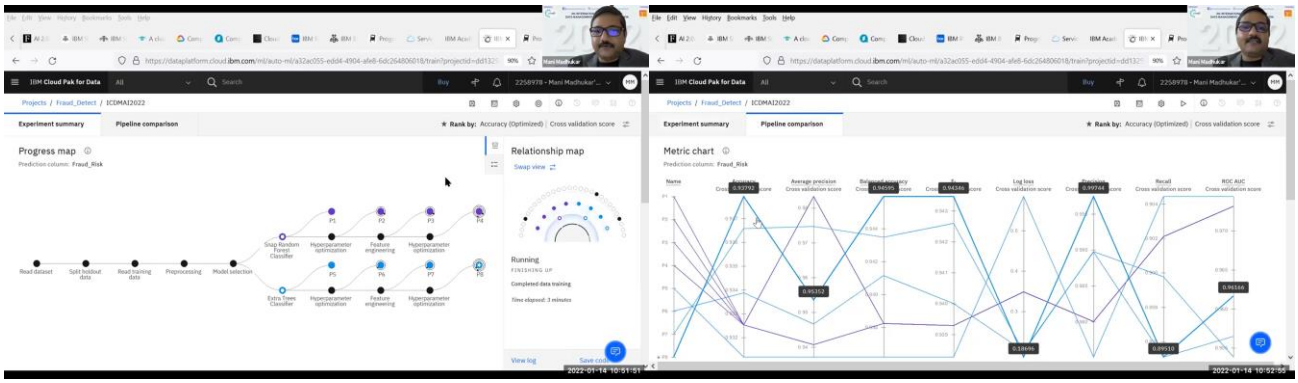
A 03-Days conference "ICDMAI 2022" commenced on 14 January 2022 with a virtual warm greeting to the expert speakers and participants on a wintry morning on the Zoom platform. Four different technical tutorials and workshops were offered as part of the pre-conference events. The pre-conference activities are the prelude to the conference and to create the environment of engaging the participants with cutting-edge Data Science, Data Management and Analytics techniques. This endeavor is not only to touch upon the latest trends on Machine Learning and Artificial Intelligence, but also to offer a space for networking amongst people from diversified domains across the industries and academic institutions.

The tutorials started at 10:00 a.m. and lasted until 5:00 p.m., with a break for lunch in between.

Workshop 1: Using AI for AI (10:00 – 11:30)

Dr. Mani Madhukar conducted an interesting workshop with ample demonstration to keep audience intrigued. Artificial intelligence has the potential to make our lives a lot easier, but not everyone is a data scientist, and not all data scientists are machine learning experts. Hence, "AI for AI", is an innovative method for autonomously developing, training, and optimizing machine learning models. Dr. Madhukar highlighted that anyone might soon develop machine learning pipelines straight from raw data, without having to write complex code or do painstaking tuning and optimization, to automate complicated, labor-intensive activities. The workshop covered AI viewpoints, digging deeper into the domain with a variety of AI applications in real-life scenarios, and implementation of practical application areas such as "AI for AI", that is speeding up the research influences with Auto AI. The difficulties of AI were depicted in sufficient detail to understand the need for AI in real-life settings. The discussion moved on to the finer points of IBM's AI Portfolio, which includes Watson Studio and Watson Machine Learning AI firepower for the commercial world. Machine learning optimizations were proven in particular to support the above logic. The implications, applications, and influencing elements of Auto AI were well discussed. The workshop came to a close with the automation of AI development using Cloud data, which were notable additions.

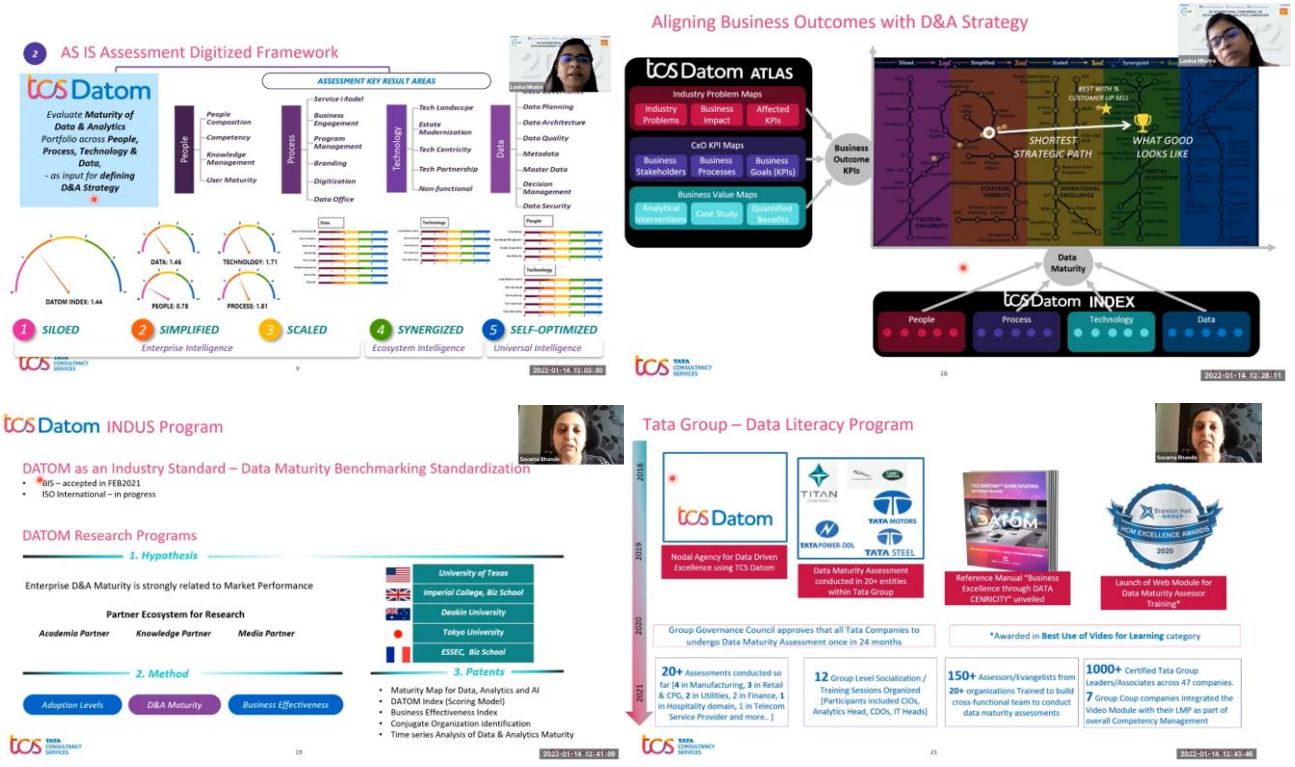




Dr. Mani Madhukar, IBM, conducting a Workshop on 14 January 2022 at ICDMAI 2022

Tutorial 2: Building Business Excellence through Data Centricity (11:30 – 13:00)

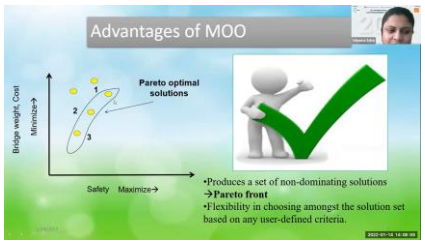
Today, all companies are leveraging data insights to create competitive advantage as a strategic pathway for growth. Adopting a data-centric approach involves bringing data and analysis at the core of everyday business processes and decision making. Framework based Data Maturity Assessments help organizations in dealing with the fast-emerging paradigms of the digital world and it is designed to help companies on their journey of data-driven excellence. TCS's proprietary framework DATOM is an outcome of years of experience in conducting Data Maturity Assessments for its customers through its Global Data Analytics practice. The patented diagnostic instrument (DATOM) identifies the current state of data-driven decision making in companies, and thereby helping define a desired state for the future. Eminent speakers from TCS Analytics and Insights Strategy Services group, **Pradip Sinha**, **Lavina Mhatre**, **Suvarna Bhonde** explained the constructs and best practices of Business Outcome driven Data Centricity with respect to TCS DATOM framework. Pradip Sinha discussed the significance of data in today's corporate environment. He shared how entities can rely on data, which is abundant, to tackle difficult challenges of scale, and how data centricity can be a superior strategy to relying on scarce resources like money, inventories, and so on. Later, Lavina Mhatre presented the DATOM framework's scope, strategy, and future roadmap in great depth and DATOM's benchmark standardizations and current research activities were demonstrated by Suvarna Bhonde.



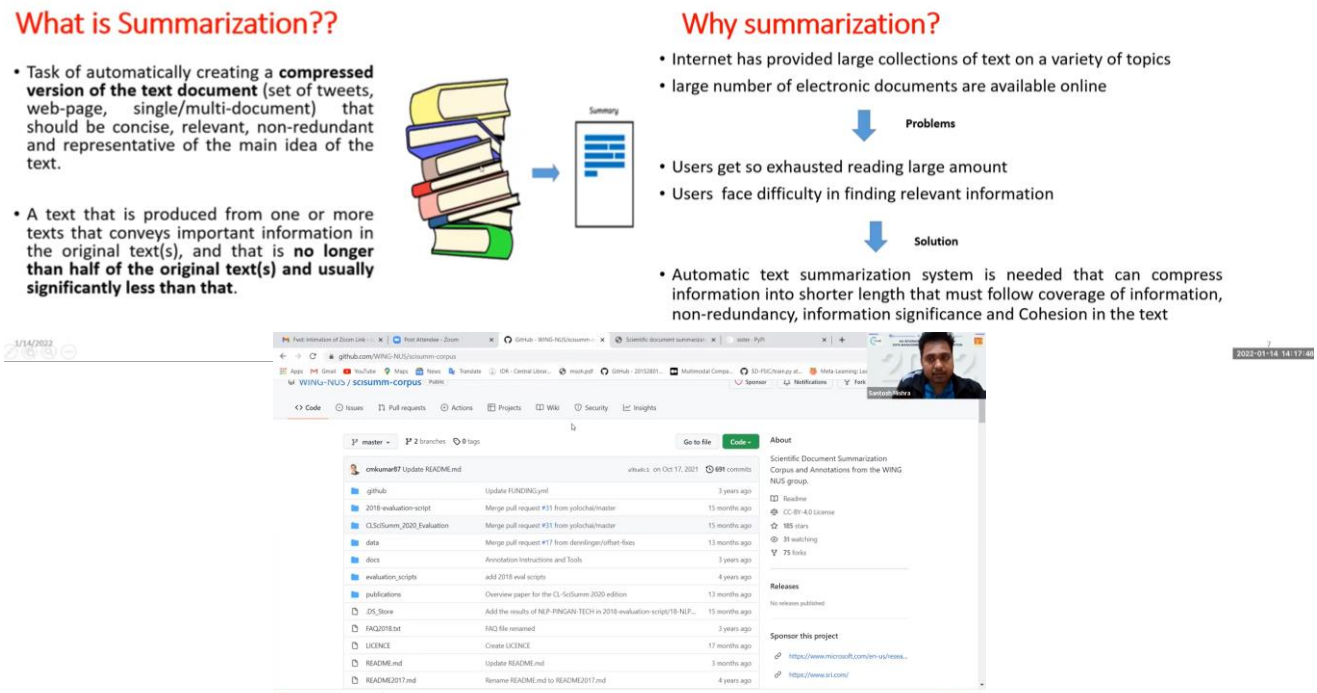
Pradip Sinha, Lavina Mhatre, Suvarna Bhonde, Analytics & Insights, TCS, conducting a Tutorial on 14 January 2022 at ICDMAI 2022

Workshop 3: Summarization Systems (14:00 – 15:30)

Dr. Sriparna Saha conducted a very elaborate workshop on summarization systems. These are the systems that are able to create both query relevant text summaries and generic machine-generated summaries, depending on the need of the user. An example of the summarization problem is document summarization, which attempts to automatically produce an abstract from the given document. Her workshop began with an explanation of Multi-Object Optimization and its benefits. She further added that summarization is regarded as a difficult task in the realm of NLP. The fast growth of information on the World Wide Web today makes it difficult for users to manually browse through all of it, especially when time is of the utmost importance. Furthermore, there may be a lot of duplicated data distributed across the input system that needs to be summarized. These factors have inspired her to create an unsupervised automatic summarizing method. Supervised approaches are not preferred since they necessitate annotated/labeled data, which is a time-consuming process. She went on to say that if such summarizing systems can be built and deployed efficiently on a global scale, they might have a significant impact in both international and national settings. She described her proposed

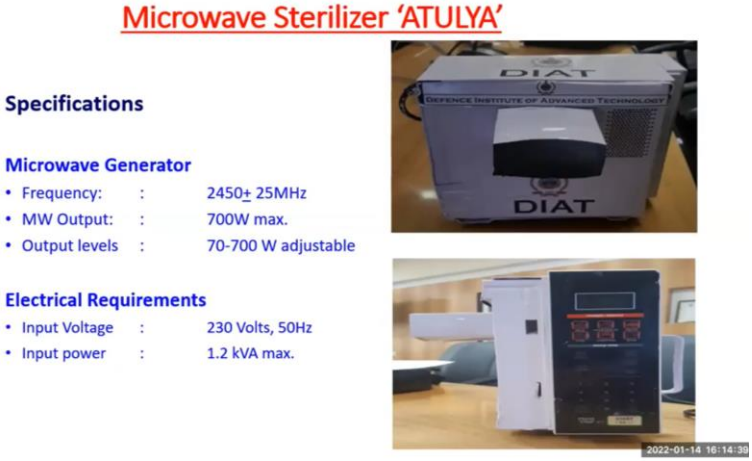


technique, ESDS SMODE, and her algorithm. At last, her student **Santosh Mishra** took over as speaker and explained how to deploy the summarization system.



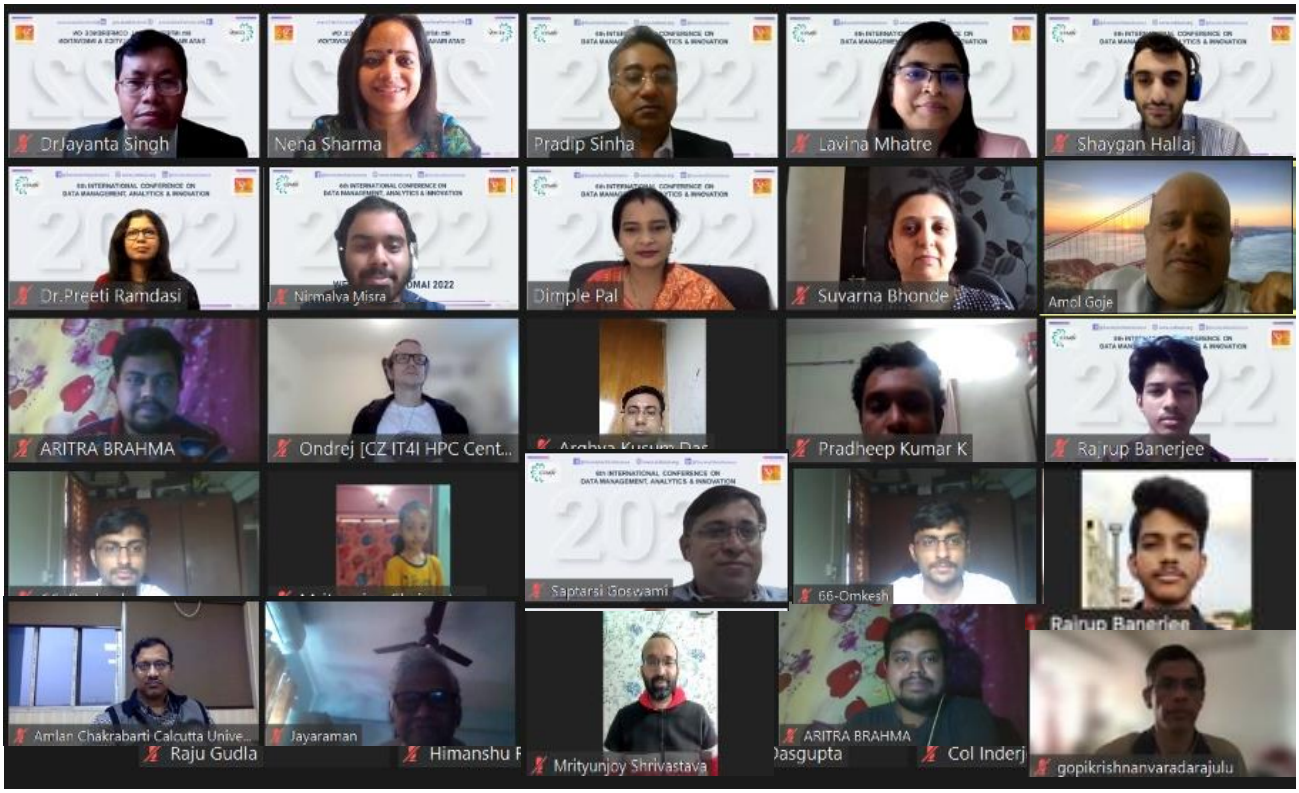
Dr. Sriparna Saha and Santosh Mishra, NIT Patna conducting a Workshop on 14 January 2022 at ICDMAI 2022

Tutorial 4: ATULYA: High Power Microwave System to neutralize COVID-19 'Concept to Commercialization' (15:30 – 17:00)



The last tutorial as a part of ICDMAI 2022 pre-conference was delivered by Dr. K. P. Ray from Defence Institute of Advanced Technology, Pune. Ray gave a quick overview of a microwave disinfection method that he and his team had patented. He did say, however, that such a technology couldn't be used to disinfect Covid-19 since a closed resonator chamber can't destroy a virus that can be found anyplace in the room. As a result, a traveling-wave type applicator had to be created. He went over the components of SARS-CoV-2 in great detail. He stated that to neutralize the virus, the virus's spike protein must be disintegrated, which can be accomplished by heating it to 56° C. Microwave energy is readily absorbed by proteins. As a result, when the virus was heated in a microwave, it decomposed. Microwave heating works from the inside out, improving its virus-neutralizing effectiveness. The microwave disintegrator was built around a commercially available 800W magnetron.

Dr. K. P. Ray, Defence Institute of Advanced Technology, Pune conducting a Tutorial on 14 January 2022 at ICDMAI 2022



Random Clicks of Experts, Speakers, Participants, Volunteers and Executive Members of S4DS on 14 January at ICDMAI 2022

Overall, the workshops and tutorial sessions were extremely enlightening and captivated the participants completely.

Day 02: 15 January 2022

(Keynote Address / Plenary Talk / Panel Discussion / Paper Presentations)

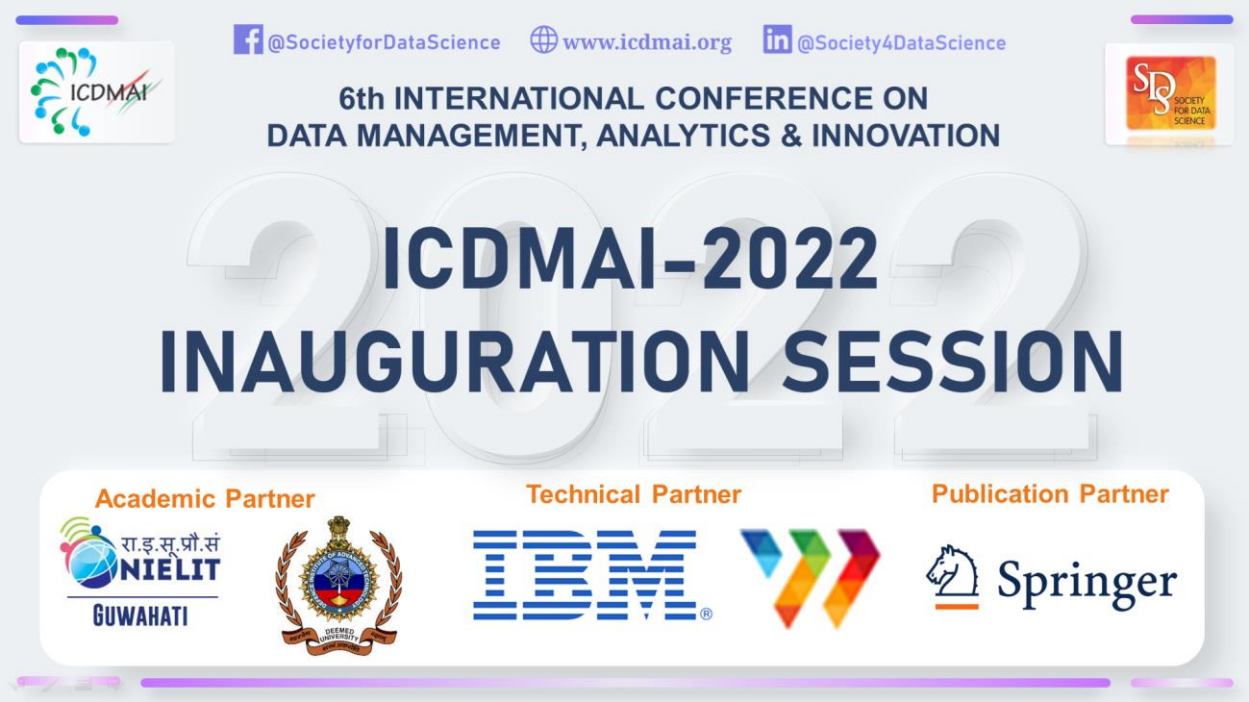
In this new normal, the preparation for the conference is all about the technical setup. The virtual meeting platform – Zoom was configured properly, couple of breakout rooms were created for delegates with common interest to interact. Other preparations like presentations and backdrops were diligently completed for the Inauguration ceremony.

Completely Decked up Virtual Venue for the Inauguration Ceremony on 15 January 2022 at ICDMAI 2022

Delegates interacting with each other in the networking lounge on 15 January 2022 at ICDMAI 2022

The inauguration programme of 6th ICDMAI was anchored by **Dr. Kriti Srivastava**, an active Taskforce member of Society for Data Science and Head of Department of Computer Science and Engineering (Data Science) at D. J. Sanghvi College of engineering, Mumbai, India. She briefed the delegates about the event

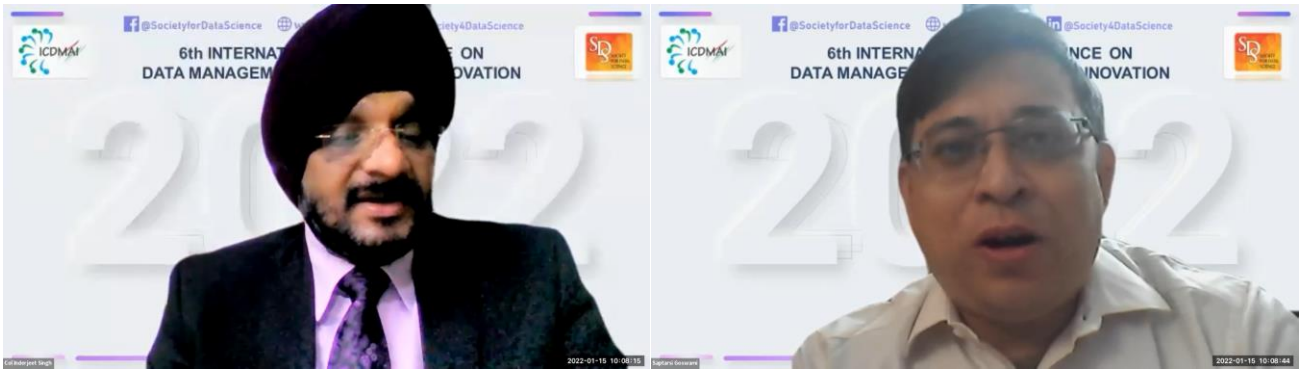
and expressed her deep gratitude to the galaxy of professionals and experts for their gracious virtual presence from all across the globe.



The inauguration ceremony begun at 10:00 AM as per the schedule and the agenda for the programme was as given below:

TIME	Min(s)	DETAILS
09:00 am – 10:00 am	60	Registration and Networking
10:00 am – 10:05 am	05	Opening Remarks by Col. Inderjit Barara and Dr. Saptarsi Goswami, Organizing Chairs, ICDMAI 2022
10:05 am – 10:10 am	05	Welcome Address by Dr. Amol Goje, President, Society for Data Science
10:10 am – 10:15 am	05	Introduction of ICDMAI 2022 by Prof. Amlan Chakrabarti and Dr. Neha Sharma, Program Chairs, ICDMAI 2022
10:15 am – 10:17 am	02	Release of Abstract Book
10:17 am –10:27 am	10	Address by General Chair, ***Dr. P.K. Sinha***, Vice Chancellor and Director-IIIT-Naya Raipur
10:27 am –10:57 am	30	Guest of Honor: ***Dr.Bhimaraya Metri***, Director, IIM Nagpur Topic: Leading Business in the Digital World
10:57 am –11:27 am	30	Chief Guest: ***Prof. C. P. Ramanarayanan***, FNAE, FAeSI, FIE -Vice Chancellor Defence Institute of Advanced Technology (DIAT), Pune Topic: Quantum Technology - Opportunities & Challenges
11:27 am –11:57 am	30	PadmaShri Sankar Kumar Pal -National Science Chair, Distinguished Scientist &Former Director, Indian Statistical Institute (Could not attend due to covid)
11:57 am – 12:00am	03	Vote of Thanks by Atul Bengiri, Executive Body Member, Society for Data Science

At the outset, Organizing Chairs of ICDMAI – Col Inderjit Berara and Dr Saptarsi Goswami presented their opening remarks and virtually felicitated the Chief Guest and the Guest of Honors. They emphasized that there is a dire need of academia, research community, corporate and professional society's like ours to come together and create a sustainable ecosystem that deals with current and futuristic need of the societal problem.



Opening Remarks by the Organizing Chairs -Col. Inderjit Barara and Dr. Saptarsi Goswami at ICDMAI 2022 at ICDMAI 2022

Prof Amol Goje, President of Society for Data Science delivered the Presidential Welcome Address. Prof. Goje welcomed all the participants and conveyed his heartfelt thanks to all the experts, speakers, participants, volunteers for their whole-hearted support in these difficult times. He further added that in these 06 years, our efforts were towards establishing the Society for Data Science at national and international level, and now it has reached to a level from where we can plan towards exploring it further. First step would be to enter into multi-disciplinary application of data science and use this platform to create solution for addressing societal problems, healthcare, agriculture and education. With IoT and 5G, we can create lots of opportunity to serve rural India through data science. He appealed all the participants to join hands with Society for Data Science for research and knowledge dessimination.

Then, the Programme Chairs, Prof Amlan Chakrabarti and Dr Neha Sharma introduced the Society for Data Science and shared the statistics of 6th ICDMAI with the guests, speakers and delegates. Prof. Amlan briefed the audience about formation, philosophy and activities of Society for Data Science, as well as appealed to the community to support in these data initiatives. Dr. Neha shared that in last 6 years, ICDMAI could successfully leave the mark in the world of data science, and has hosted 65 doyens of data science as key note speakers and another set of 60 technical experts contributed towards workshops and tutorials. ICDMAI has witnessed many Padmashri awardee, Vice Chancellors, Directors, CEOs, MDs, VPs, on its platform. Besides, around 200 experts were engaged as reviewers and session chairs. Till date we have received around 2177 papers from 50 countries, out of which 412 papers have been presented and published, which is just (18.9%) of submitted papers. She added that in just a short spant of time, a good connects with leading corporate houses like IBM, TCS, Cognizant, accenture, wizertech and reputed academic institutions, have been established. At the end, she promised to present the bouquet of interesting events like

workshops, tutorials, keynote sessions, plenary talks, panel discussion and 50 paper presentations by the experts, in this ICDMAI 2022.

Programme Chairs, Prof Amlan Chakrabarti and Dr Neha Sharma introducing S4DS and ICDMAI on 15 January 2022 at ICDMAI 2022

Moving ahead, Dr. Kriti Srivastava invited all the dignitaries, guests and participants on call for virtual release the abstract book for ICDMAI 2022.

Launch of Abstract Book on 15 January 2022 at ICDMAI 2022

Going forward, **Dr. P. K. Sinha**, Vice Chancellor & Director of International Institute of Information Technology (IIIT), Naya Raipur and General Chair - ICDMAI 2022, welcomed all the guests and delegates. Sir shared that like its 5th edition, due to the continued threat of the COVID-19 pandemic, the 6th edition of this popular International Conference on Data Management, Analytics and Innovation is again being organized virtually, keeping into mind the safety of the organizers and participants. He said, however, our commitment to provide a global platform for highly enriching deliberations on this futuristic technology area remains as

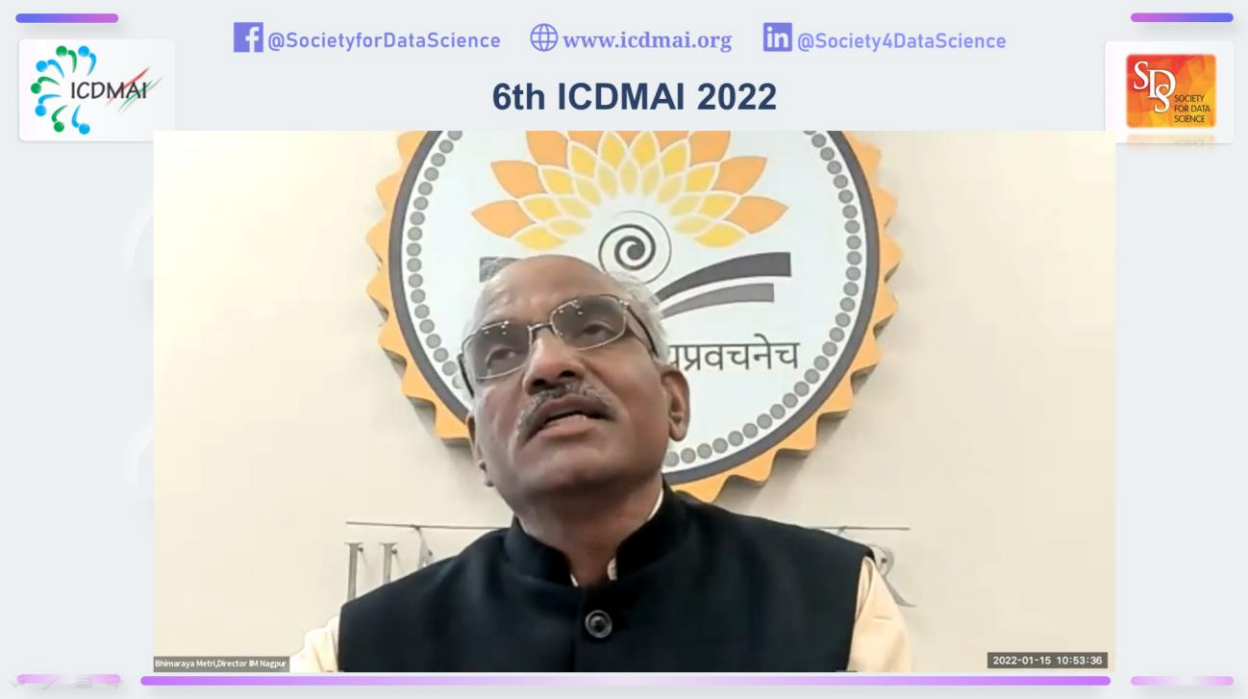
before. Dr. Sinha, shared his experience of reviewing the book titled "Open Data for Sustainable Development" authored by members of S4DS, in which they had proposed the use of DSAI (Data Science & Artificial Intelligence) to achieve the SDGs (Sustainable Development Goals) identified by the United Nations to ensure peace and prosperity for all people on this planet. He said, such books and research monographs re-confirm the need of the hour to accelerate data science research and to produce good data scientists. This conference aims at contributing to these objectives by bringing together researchers, scientists, academicians and students working in the area of data science and associated disciplines.

Dr. P. K. Sinha, further added that right from its first edition in 2016, ICDMAI has attracted eloquent keynote speakers, paper presenters, and participants from various countries, making it a truly international event. He said, we are committed to focus our research for solving socially relevant problems, and we are sure that this year's ICDMAI will have several interesting deliberations on data science techniques for handling various types of challenges faced by different sections of the society due to the pandemic. Sir thanked Society for Data Science (S4DS) for taking the initiative to organize this important annual technical event. Finally, he wished this year's version of the conference to be equally enriching and successful as its earlier versions, in-spite-of being conducted virtually.

General Chair, Dr P. K. Sinha Addressing the Participant during Inauguration Session on 15 January 2022 at ICDMAI 2022

Proceeding further towards the inaugural keynote on "***Leading Business in the Digital World***" by the Guest of Honors, **Dr.Bhimaraya Metri**, Director, IIM Nagpur. Dr Metri said that the world is in fluid state and the change in inevitable, so it is essential to adapt to the change. There are 03 key-differentiators to succeed in the present times – Data, Analytics and Innovation. He said that the fact based decision making process is very old and even Gautama Buddha preached to collect, analyze, discuss and then take informed decision. Being innovative and creative provides you an edge, for example Google, Tesla, etc. are very young companies but are ruling the world, at the same time the companies who have not been innovative have faded away. Dr. Metri emphasized that the world leader will be the one who would work on data and create

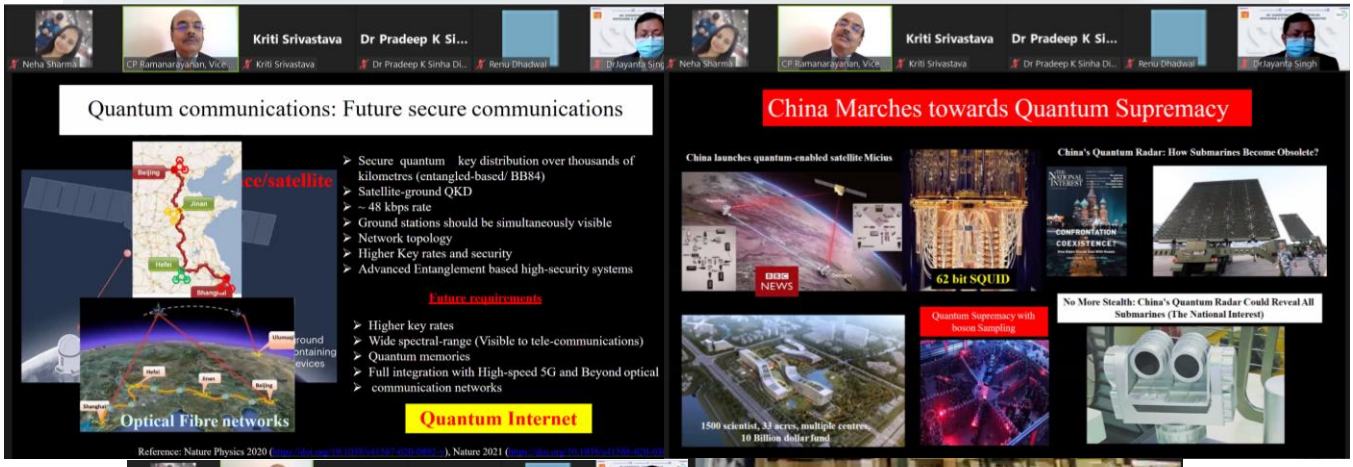
solutions for complex problems, like – detecting cancer in first stage itself. He also talked about phygital world and society 5.0 and said that in 21st century, illiterate are those who do not know about data, analysis and innovation. Dr. Metri predicted that from Internet of Things, business will turn to Internet of Technology, followed by Internet of Ability and Internet of Behavior, which can only be controlled by innovation. He appreciated the conference for creating awareness, promoting applications, smart cities, smart village, smart agriculture, which can solve the problem of migration from rural area to cities.



Guest of Honors - Dr.Bhimaraya Metri, Director-IIM, Magpur delivering a keynote on 15 January 2022 at ICDMAI 2022

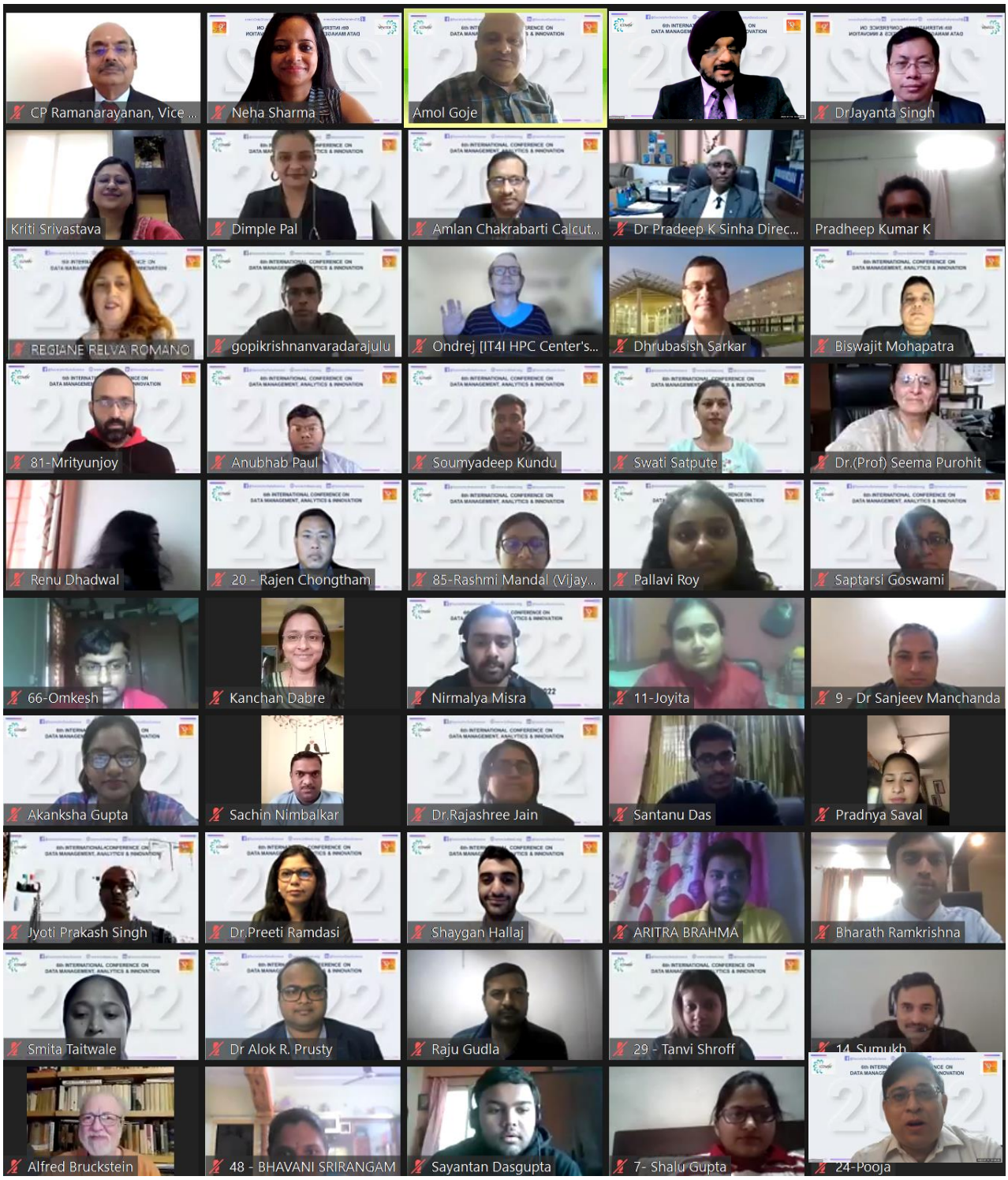
Finally, it was the time to listen to the keynote by the chief guest, **Prof. C. P. Ramanarayanan**, Vice Chancellor Defence Institute of Advanced Technology (DIAT), Pune, on "***Quantum Technology - Opportunities & Challenges***". Prof Ramanarayanan shared that the quantum technology is based on the principles of quantum mechanics, which are predominant at atomic and subatomic levels, and it involves control and manipulation of quantum systems. He shared the complete evolution of quantum theories since 1864 till date. He highlighted that the latest quantum technology proposed in 2013 has 04 useful applications like – quantum communications, quantum computation, quantum sensing and metrology, and quantum materials. Quantum communications is the future of secure communications and in future it will need higher key rates, wide-spectral range, quantum memories, full integration with high-speed 5G and beyond optical and communication networks. He shared that quantum computing is getting developed in unprecedented speed and there is race of supremacy among the countries. Quantum computing basically uses superposition and entanglement to perform computations. It also uses cooled superconducting circuit, trapped atom/ion, photons (qubits). Qubits can represent all possible combinations of 1 and 0 at the same time. Future of quantum computing requires scalability of qubits, gates faster than quantum decoherence and linear optical quantum computing. Prof Ramanarayanan said that in India, there is lot of research is going on but are done is isolation, whereas there is a requirement of concerted efforts in this direction. In future, data science, data security, data protection cannot be achieved without quantum. Sir said that this

conference will open up the areas of research with quantum technology in the above stated area. The talk was very informative and well appreciated by the participants.



Chief Guest Prof. C. P. Ramanarayanan, Vice Chancellor, DIAT, Pune delivering a keynote on 15 January 2022 at ICDMAI 2022

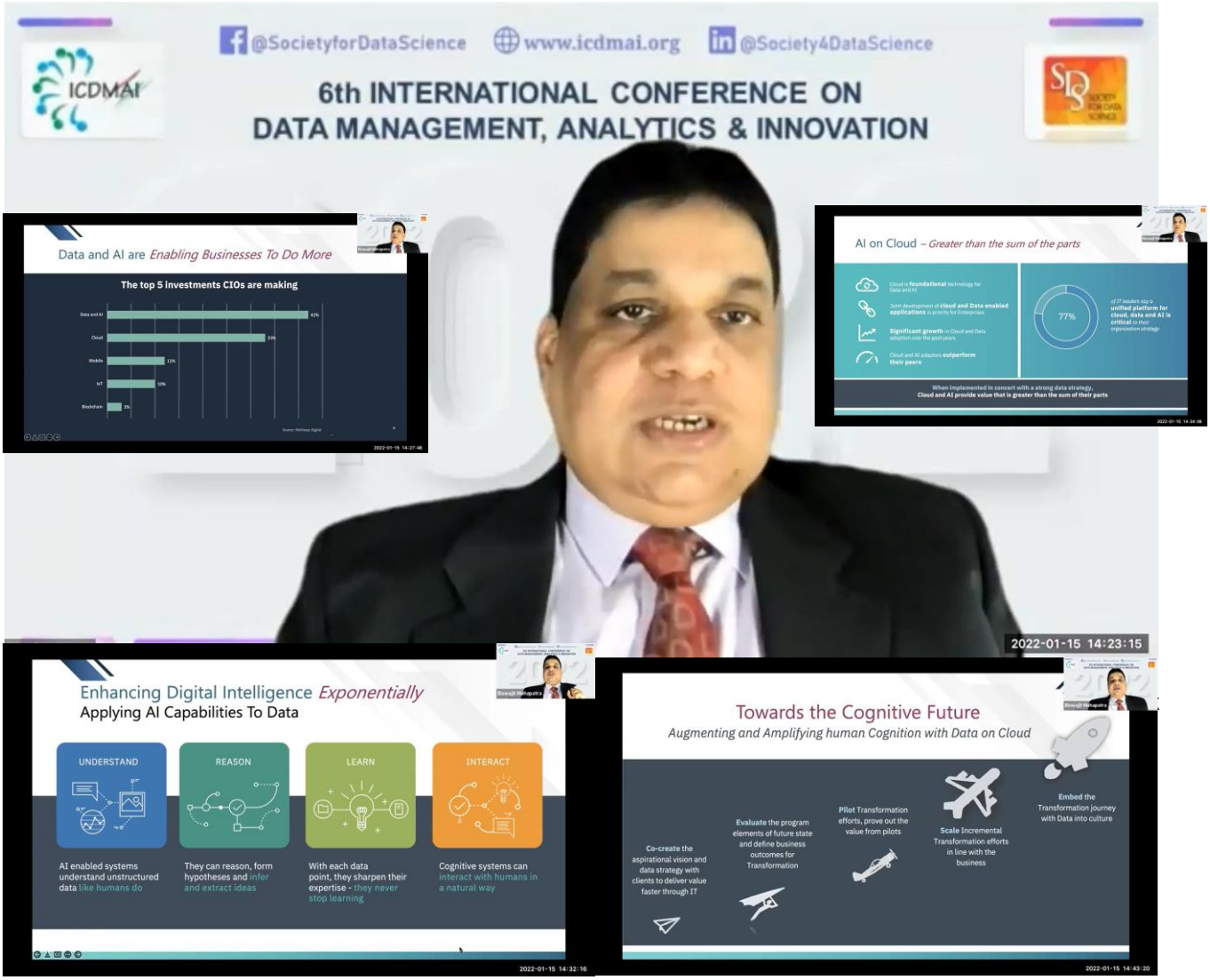
At the end, Dr. Kriti Srivastava, proposed the vote of thanks and thanked everybody who supported us to organize a conference of this magnitude. She appealed to all the guests, partners and delegates for their continued support in future to help us create a data science ecosystem.



Glimpse of ICDMAI 2022 on 15 January 2022 during Inauguration Session

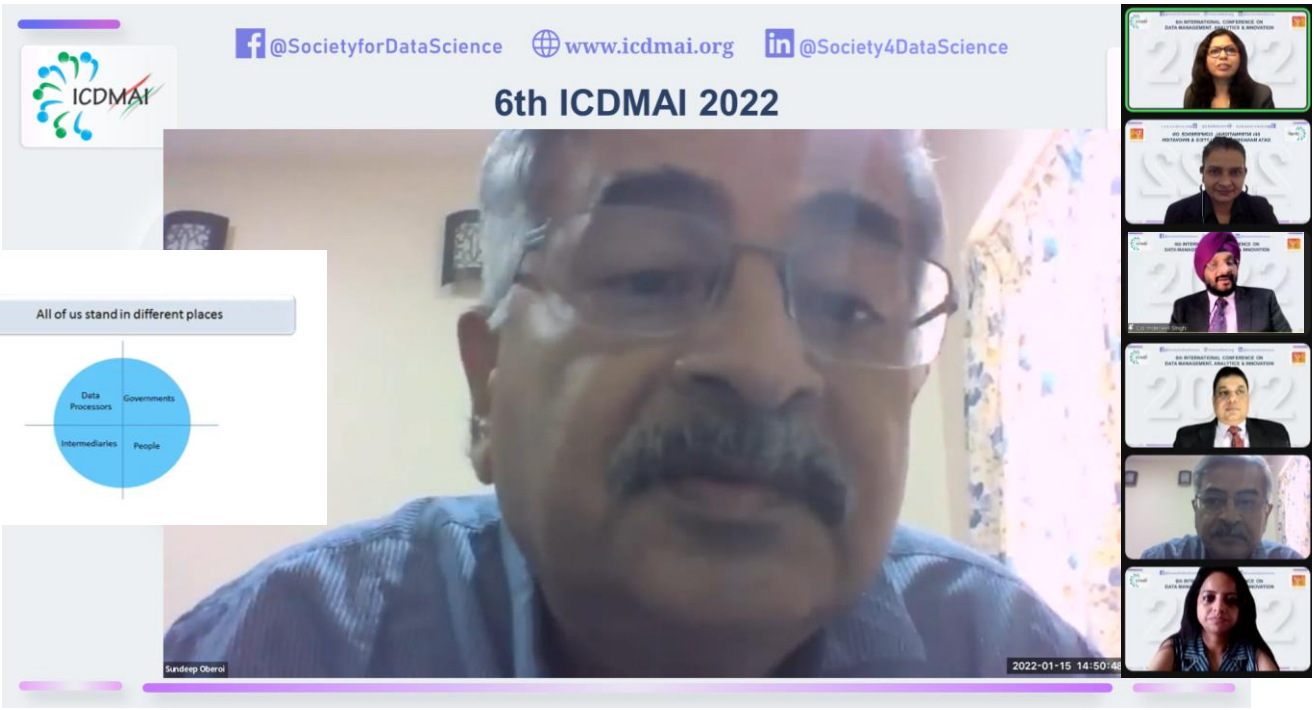
Inauguration ceremony was followed by the Paper Presentation Session 01, where 16 papers were presented in 04 parallel tracks of 60 mins each. The delegates dispersed to their respective Tracks for the paper presentation.

Another set of Keynote talks and an interesting Panel Discussion was scheduled post lunch. This session was hosted by **Dr. Preeti Ramdasi** from Analytics and Insights, Tata Consultancy Services. She introduced the first keynote speaker **Biswajit Mohapatra**, Partner and Executive Director, IBM, and invited him to deliver a keynote talk on "***Re-Thinking Data and AI for the Cognitive Future***". Biswajit shared that enterprises are rethinking their cognitive transformation journey in post-pandemic new world order. Data driven platforms are increasingly realizing the benefits of AI and rebuilding businesses around experience and reimagining growth. The keynote by Biswajit focused on shifting AI adoption from experimenting to strategic envisioning and growing importance of data capabilities to deliver trust, transparency and decisions. The talk also covered how managing data in a multi-cloud world needs an architecture driven pattern based data strategy to accelerate transformation. AI at scale built on digital data foundation is strategic imperative today to build



Keynote Address by Biswajit Mohapatra, Partner and Executive Director, IBM on 15 January 2022, ICDMAI 2022

Dr. Sundeep Oberoi, Former Global Head of Cybersecurity Business Unit, TCS, delivered the next keynote on "***Contemporary Challenges in Data Policy and Governance***". Dr Oberoi started by highlighting the perspective about data privacy, that one builds depending on the place at which he is standing. Different places that can influence the viewpoint, could be government sector, data processors, intermediaries and end user. People at different places will face different issues related to data economics like – collecting data, deriving insights from data, protecting data. Data protection is about confidentiality and data privacy, but the major challenge is of data integrity/data correctness. Dr. Oberoi, further explained the difference between privacy and data security and quoted Puttaswamy judgment that states that privacy needs protection and privacy is not data protection. There are few large organizations that can acquire data of their customers and regulate them, that is still okay. He said that the real big problem is the emergence of data broker who buy and resell data. They never interact with the customers, they just process the collected data, convert them into a product and sell it, without getting noticed by regulatory bodies. Dr. Oberoi covered the broad ranging issues and all the participants were enlightened by the knowledge nuggets highlighting the challenges in data policy and governance.



Keynote Address by Dr. Sundeep Oberoi, Former Global Head of Cybersecurity Business Unit, TCS on 15 January 2022, ICDMAI 2022

After 02 power packed keynote talks, there was a Panel Discussion on "**Data Driven Climate Literacy and Actionable Insights**", moderated by **Dinanath Kholkar**, Vice President, Global Head of Analytics & Insights, Tata Consultancy Services and the esteemed panelist were **Padmashri Amitav Mallik**, Head, Energy Environment and Climate Change (EECC) & Founder, Climate Collective, Pune; **Dr. Priyadarshini Karve** - Managing Director, Samuchit Enviro Tech; National Convener, Indian Network on Ethics and Climate Change (INECC) and **Dr. Pravin Bhagwat**, Founder, 14 Trees Foundation. At the outset, Dina set the context by highlighting that climate change affects everything from geopolitics to economies to migration. He said that it shapes cities, life expectancies and wine lists, and because it touches everything, its time to examine it every angle imaginable. Dina requested all the panelists to share about the work they are doing.

***Response* from *Dr. Priyadarshini Karve*:**

Samuchit Enviro Tech is a social enterprise that is focused on environmental awareness and sustainability in life through:

1. Carbon Footprint Calculator for urban Indians developed in 2007 as a way to engage with people in a conversation regarding climate change.
2. Personalized calculators, especially for academic institution to calculate the carbon emitted at personal level. This was developed to create awareness by adopting "Do it Yourself" and understand.
3. Mapping urban vulnerability to the climate change and help trigger the innovative solutions.

Response from Dr. Pravin Bhagwat:

14 Trees Foundation is a charitable organization dedicated to building sustainable, carbon-footprint-neutral eco-systems through re-forestation. Following are the primary tasks that have been undertaken by the foundation:

1. Restoring native green cover on ecologically degraded patches of barren hills near Pune.
2. Digging ponds to store rain water and trenches to recharge ground water.
3. Planting native trees on barren hills
   - where currently only grass grows,
   - which are burnt every year,
   - where trees do not survive naturally,

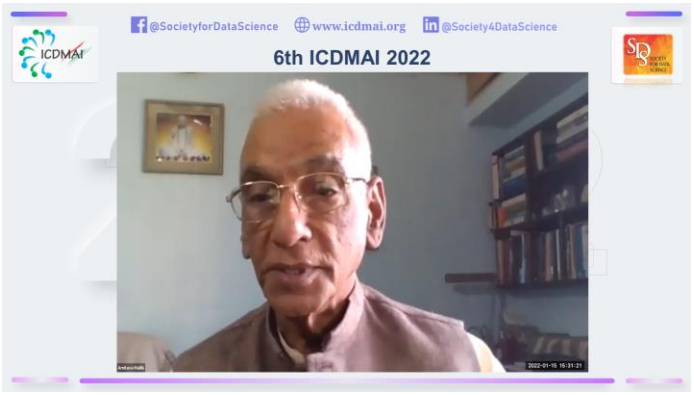
- where topsoil is eroded, and
-where groundwater has completely depleted

4. Generating livelihood for local tribals

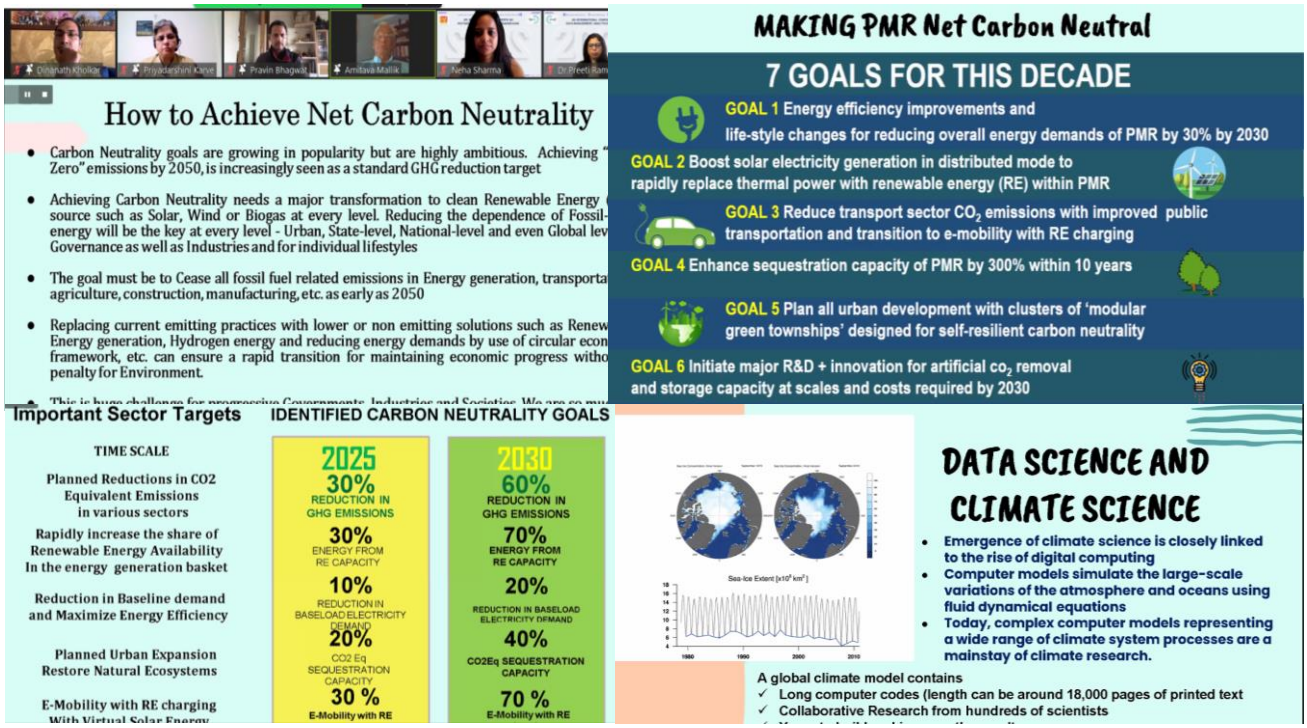
Presentation on 14 Trees by Dr. Pravin Bhagwat during Panel Discussion on 15 January 2022, ICDMAI 2022

Finally, Dr. Pravin said that 14 Trees objective is to persuade every human on earth to plant at least 14 trees.

***Response from* Padmashri *Dr.* Amitav Mallik**:



The Climate Collective Pune aims to evolve a practical road-map for people to take charge of making Pune Carbon Neutral by 2030. Climate Action is an 'Opportunity' to establish constructive discussions for timely action by identifying environmental problems and devising solutions that can help at every level - household, community, State and National levels. Dr. Mallik shared that with just 1°C rise in the average temperature of the Earth till date, impacts of 'Global Warming' and climate changes like extreme weather events, frequent flooding, extended droughts, more violent hurricanes, polar ice melting etc. are already visible. Most Nations have agreed that Earth must not be allowed to get warmer than 2°C to prevent catastrophic impacts of Climate Change. Yet action on the ground is alarmingly poor because of inadequate awareness about this invisible but imminent danger. Hence, Pune International Centre (PIC) in May 2018 organized a workshop on 'Climate Literacy' (Awareness) in collaboration with Centre for Environment Education (CEE) and several other environmental NGOs and expert groups. The "Climate Collective Pune" group (CCP) evolved from there for collective actions to enhance the public awareness about the climate change at every level – individuals, communities, institutions and businesses and to create a citizen movement for 'Climate Action' for making the Pune region 'Carbon Neutral' by 2030.



Presentation on Climate Collective Pune by Padmashri Dr. Amitav Mallik during Panel Discussion on 15 January 2022, ICDMAI 2022

Mr. Dinanath Kholkar asked **Dr. Priyadarshini Karve** about her views on social change on climate change.

Response: Dr. Karve said that India as a country live with a notion that we are the lowest contributors in the global carbon mission, as we rank third in the global list, accounting for 2.46 billion metric tonnes of carbon or 6.8% of the total global emissions. She further shared that a first nationwide study conducted by Japan-based Research Institute for Humanity and Nature showed that the top 20% of high-expenditure households in India are responsible for seven times the emissions traceable to the poor who spend less than $1.9 (Rs 140) a day. That means the carbon footprint of every Indian was estimated at 0.56 tonne per year – 0.19 tonne per capita among the poor and 1.32 tonne among the rich. Dr. Karve said that the tool they prepared to calculate carbon emission was customized to create awareness among college students. They were asked to calculate their personal emissions, and this exercise helped them realize that their personal carbon emissions are higher than the national average. This created a concern to contribute among youths and hence brought the social change. She shared that they conducted a wide variety of public outreach events (talks, discussions, demonstrations, interactions, etc.) on climate change, urban sustainability, organic waste management, eco-friendly products and technologies, etc., both online and offline to generate awareness.

Moving forward Mr. Dinanath Kholkar asked **Dr. Pravin Bhagwat** regarding his views on creating awareness about Climate Change.

Response: Dr. Pravin said that 14 Trees Foundation is trying to combat climate change with the help of data point. He shared the research which says that the increase in global CO_2 emissions of over 2 billion tonnes was the largest in history in absolute terms. He raised concern about comprehending these numbers by common people. Whether these numbers are small or large? These numbers doesn't mean anything to a layman. He further added that we need to appeal to people's emotion with the help of fact / figures that

people can comprehend. For example - to absorb the entire CO_2 emitted by an individual in his life-time and leave the earth without any carbon footprint, we need to grow 14 trees. So, if we decompose the complex numbers / problems in to smaller actionable problems, then probably, it will be easier to act. Climate crises cannot be solved by the government alone, it can be addressed by the whole hearted participation by the citizens. However, masses will act, only if they understand. Dr Pravin concluded by saying that conservation and restoration should be the source of livelihood.

Glimpse of Panel Discussion on "Data Driven Climate Literacy and Actionable Insights", Dinanath Kholkar (Moderator)(Top Left) and Panel Members - Padmashri Dr. Amitav Mallik (Bottom Left); Dr. Priyadarshini Karve (Bottom Right) and Dr. Pravin (Top Right) on 15 January 2022, ICDMAI 2022

Finally, Mr. Dinanath Kholkar requested **Padmashri Dr. Amitav Mallik** for his guidance to the data scientists to be able to contribute to convert Pune to carbon neutral.

Response: Padmashri Dr. Mallik said that the solution to make the city of Pune, a carbon neutral, is local. Application of data science/ data analysis using local data would be very relevant and effective in creating awareness. He said, data plays an important role and the quality of data is critical as it can influence the solution. Any remarks without data would be just a guess work. Data can bring element of awareness with credible data points. He also added that correct data is no more subjective but it is objective, especially in case of AI usage in climate science.

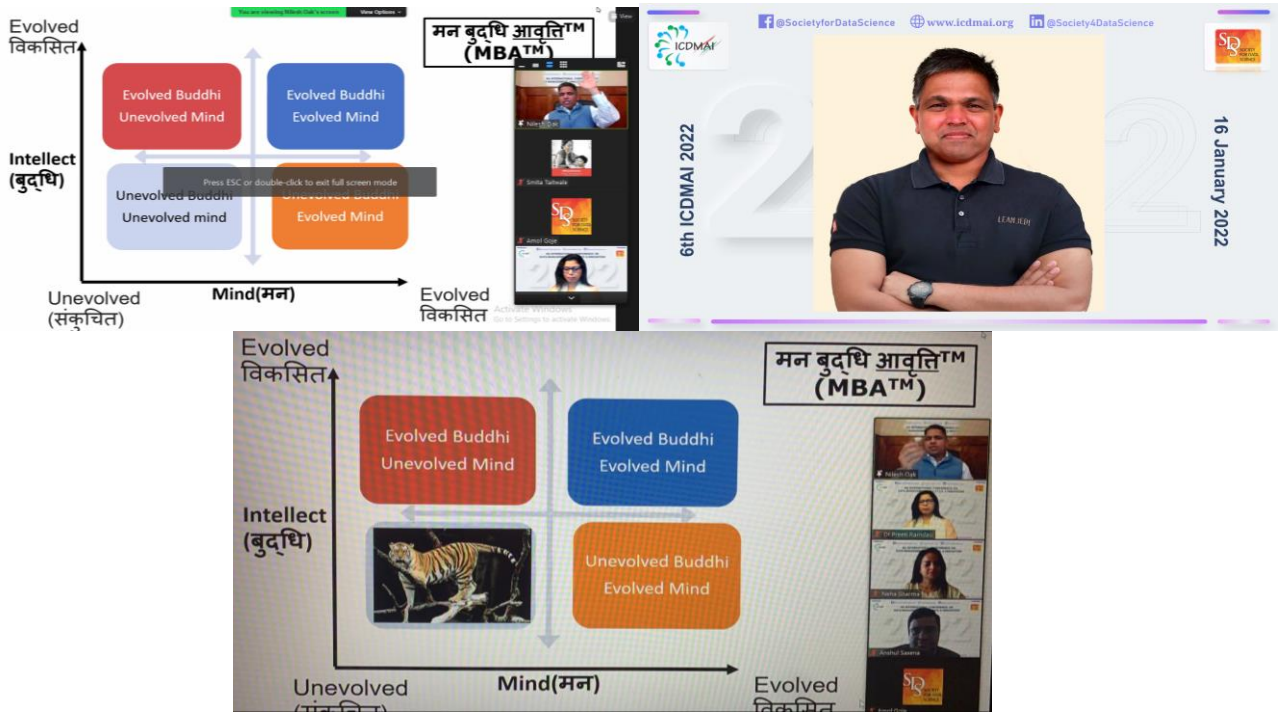
At the end, Mr. Dinanath Kholkar summarized the points highlight by the panel members.

After panel discussion, the delegates dispersed for the paper presentation in five different tracks of 60 mins each. Total 20 papers were presented in session 02.

Day 03: 16 January 2022

(Keynote Address / Plenary Talk / Panel Discussion / Paper Presentations / Award Function)

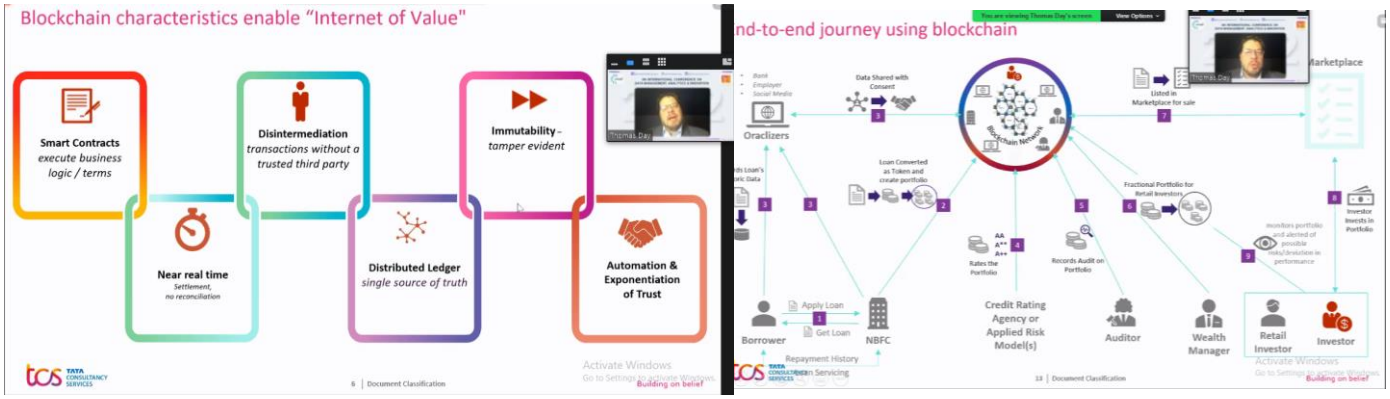
Day 03 began with the arrival of the guests, delegates and participants at the virtual venue since morning to attend the final day of the conference. This session was hosted by **Prof. Anshul Saxena** from CHRIST (Deemed to be University), Pune Lavasa Campus. He recapped the events of past two days and started the day with a keynote talk on a very stimulating topic "***Data mining - intellectual and psychological integrity***" by **Nilesh Oak** - Author, Researcher, Speaker, Corporate Consultant & Adjunct Faculty - Institute of Advanced Sciences, Dartmouth, MA, USA. Mr. Oak explained the progress of the data mining in understanding intellectual and psychological integrity. He presented a matrix of evaluation to explain relation between mind and intellect. From un-evolved mind with un-evolved intellect to un-evolved mind with evolved intellect, to un-evolved intellect with evolved mind and finally, evolved intellect with evolved brain, was explained beautifully with lots of interesting examples.



Keynote Address by Nilesh Oak - Author, Researcher, Speaker, Corporate Consultant & Adjunct Faculty - Institute of Advanced Sciences, Dartmouth, MA, USA on 16 January 2022, ICDMAI 2022

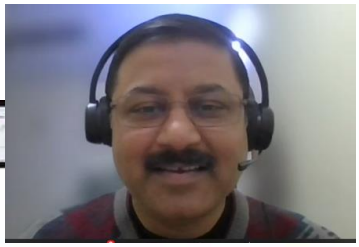
Second keynote talk was by **Thomas Day**, Managing partner, Business Analytics Advisory, Risk Regulatory and Compliance, TCS on the topic "***Digitizing Banking: The Role of Permissioned Blockchains***". Thomas shared that today all the components exist for conducting digital asset transfer and management (e.g., front, middle and back office operations) in a trusted, secure and private blockchain. The use-cases include automation of correspondent banking, loan syndication, and trade letters of credit - among others. In the limit, and using micro-services called smart contracts that are embedded in the ledger, all payments, cash flows, accruals, and servicing steps can be automated digitally. This would be a revolution for banks crippled by legacy transaction processing systems. The same holds for internal blockchains that can be used for workflow and event management to automate regulatory compliance at scale. For climate risk, among others, this is probably the best way to approach enterprise climate stress testing (for a variety of reasons). This would

include off-chain nodes that would act as repositories for documentation, data, shared analytics, local and global compliance requirements. In the session, Thomas explained many ideas on the path towards enhanced digitization of banking and proposed a novel approach for instantiating a permission blockchain for digital asset origination, management (e.g., settlement and lifecycle servicing, and transaction processing. He concluded by sharing the aim to replace out dated legacy transaction processing systems in favor of a decentralized, permissioned solution.



Keynote Address by Thomas Day, Managing partner, Business Analytics Advisory, Risk Regulatory and Compliance, TCS on 16 January 2022, ICDMAI 2022

Next was the plenary session on very important topic for every researcher, i.e. "***Publishing Ethics and Author Services***", which was delivered by **Aninda Bose** - Senior Publishing Editor, Springer India Pvt. Ltd. Aninda explained that the importance of research publishing by a simple quote of Gerard Piel, which says "Without publication, science is dead." The first scientific journal was published in 1665 and we have travelled 350 years since then. In the last 20 years, science and reporting of science have undergone revolutionary changes. Computerization and Internet have changed the traditional ways of reading and writing. Hence, it is very important for scientists and students of the sciences in all disciplines to understand the complete process of writing and publishing of scientific paper in good journals. There is also a downside of digital publishing. The principal challenge for publishers is to handle ethical issues and it is of utmost importance for the authors to understand the ethical practices involved in the process. Aninda, in his talk provided information on different ethical practices and also on how to make use of various author services for the publishing work.



Keynote Address by Aninda Bose - Senior Publishing Editor, Springer India Pvt. Ltd on 16 January 2022, ICDMAI 2022

After the first set of keynote talks and plenary sessions, the delegates dispersed for the paper presentation in four different tracks of 60 mins each. Total 16 papers were presented in the session 03.

Moving forward, the next set of Keynote talks were presented by **Dr. Neha Sharma**, founder secretary, S4DS working at Tata Consultancy Services. She introduced the first keynote speaker - **Gopi Varadarajulu**, Senior Technical Staff Member & Architect, IBM Data and AI Portfolio, who delivered a talk on the topic "***Secure Data Science Practice - Is this practical!***". In this talk Gopi shared about few modern research, applied techniques, their effectiveness in protecting privacy and still be able to do analytics on data, beyond the known techniques such as ZKP. The session covered the state of art techniques for implementing secure data sciences in enterprises. It also covered some upcoming areas of research in the secure data science domain.

Keynote Address by Gopi Varadarajulu, Senior Technical Staff Member & Architect, IBM Data and AI Portfolio on 16 January 2022, ICDMAI 2022

Next keynote talk was by **Prof. Mini Thomas** - Professor, Dept of EE, Jamia Millia Islamia & Former Director. NIT Tiruchirappalli on the topic "***Big Data Applications in Power Systems***". Prof. Mini said that the topic brings together experts from academia, industry and regulatory agencies who share their understanding and discuss the big data analytics applications for power systems diagnostics, operation and control. She added that the recent developments in monitoring systems and sensor networks dramatically increase the variety, volume and velocity of measurement data in electricity transmission and distribution level. She brought the focus on rapidly modernizing monitoring systems, measurement data availability, big data handling and machine learning approaches to process high dimensional, heterogeneous and spatiotemporal data. Finally, challenges, opportunities, success stories and pathways for utilizing big data value in smart grids was also discussed.

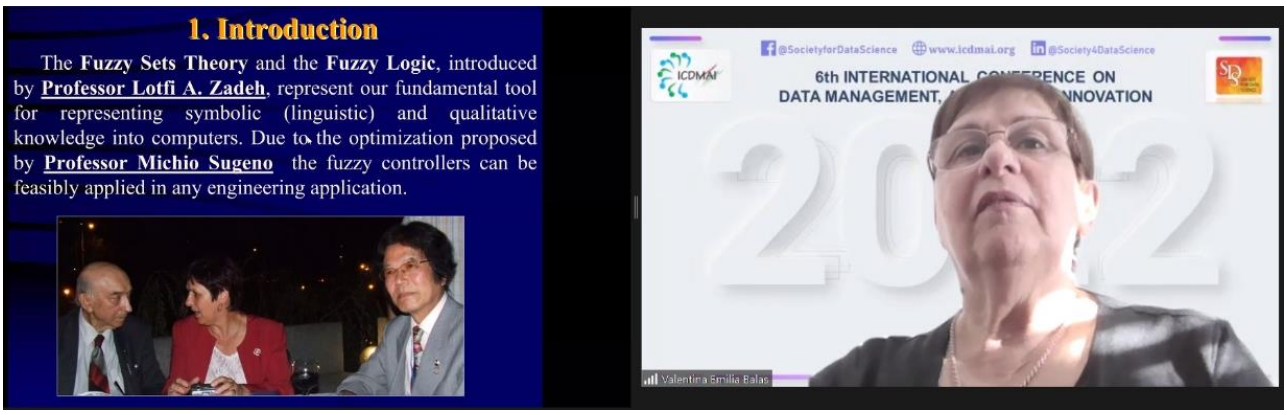
Keynote Address by Prof. Mini Thomas - Professor, Dept of EE, Jamia Millia Islamia & Former Director. NIT Tiruchirappalli on 16 January 2022, ICDMAI 2022

There was a lunch break after the two keynote talks.

Finally, , it was a time for Valedictory Session which was hosted by **Dr. Preeti Ramdasi** from Analytics and Insights, Tata Consultancy Services, which had two valedictory keynote talks and the award announcement ceremony. First keynote talk was by **Subhobroto Chakraborty**, Founder, TheDigitalFellow & TheDigitalFellow Academy, on the topic "***Data Drives Decision***". Subhobroto broke the Indian Business into 3 parts, data rich (who live by data), data poor (who are still struggling to use data) and data ignorant (who don't value or use data) for their business decisions. Data rich are 1%, data poor are like 80% and rest is 19% who have no idea how to use data. He said that India is still not digitally matured to use data efficiently and effectively, and to understand data and digital from early age. Indian business schools don't teach data much to students. Hence, very less people understand the value of data, which makes us digitally handicapped. He further suggested that to bridge the gap we need to introduce the data related learning at early stages of education. Workshop, training and data mining course will help to fill this knowledge gap. The industry will be more capable of leveraging data to take right business decisions, only when we fill this gap.

Keynote Address by Subhobroto Chakraborty, Founder, TheDigitalFellow & TheDigitalFellow Academy on 16 January 2022, ICDMAI 2022

Second keynote talk was by **Prof. Valentina Balas**, Professor, University of Arad, Romania on the topic "***Multidisciplinary Soft Computing Techniques and Applications***". Prof. Balas explained that soft computing refers to the science of reasoning, thinking and deduction that recognizes and uses the real world phenomena of grouping, memberships, and classification of various quantities under study. As such, it is an extension of natural heuristics and capable of dealing with complex systems because it does not require strict mathematical definitions and distinctions for the system components. She said it solves nonlinear problems, in which mathematical models are not available and introduces the human knowledge such as cognition, recognition, understanding, learning, and others into the fields of computing. This resulted in the possibility of constructing intelligent systems such as autonomous self-tuning systems, and automated designed systems. Dr. Balas highlighted various areas of soft computing techniques.



Keynote Address by Valentina Balas, Professor, University of Arad, Romania on 16 January 2022, ICDMAI 2022

At the end, it was the time for Award Announcements in two categories – "Life Time Achievement Award" and "Best Paper Presentation Award". Col. Dr. Inderjit Singh, Executive Body Member of Society for Data Science announced the **S4DS Life Time Achievement Award 2022**. The details are as follows:

AWARD	NAME	Photograph
S4DS Life Time Achievement Award 2022 (India)	**Dr. C. P. Ramanarayanan**, Vice Chancellor, Defence Institute of Advanced Technology (DIAT), Pune	
S4DS Life Time Achievement Award 2022 (India)	**Dr. P.K. Sinha,** Vice Chancellor and Director, Dr S P Mukherjee International Institute of Information Technology, Raipur, Chhattisgarh	
S4DS Life Time Achievement Award 2022 (Indian Armed Forces)	**Admiral Hari Kumar Radhakrishnan**, The Chief of Naval Staff, CNS Secretarial, Room No 190, South Block, New Delhi	
S4DS Life Time Achievement Award 2022(International)	**Dr. Valentina Balas,** Professor, University of Arad, Romania	

S4DS Life Time Achievement Awards to Distinguished Leaders on 16 January 2022, ICDMAI 2022

Now, it was the time for much awaited event in every researchers life ie. **Best Paper Presentation Award 2022**, as it gives the returns to the efforts put in by them throughout their research endeavor. It gives a sense of achievement and a sense of responsibility towards fulfilling further commitments towards research. Dr. Preeti Ramdasi declared the winners for each track and bestowed them with a Trophy and Certificate. The details of the same are as follows:

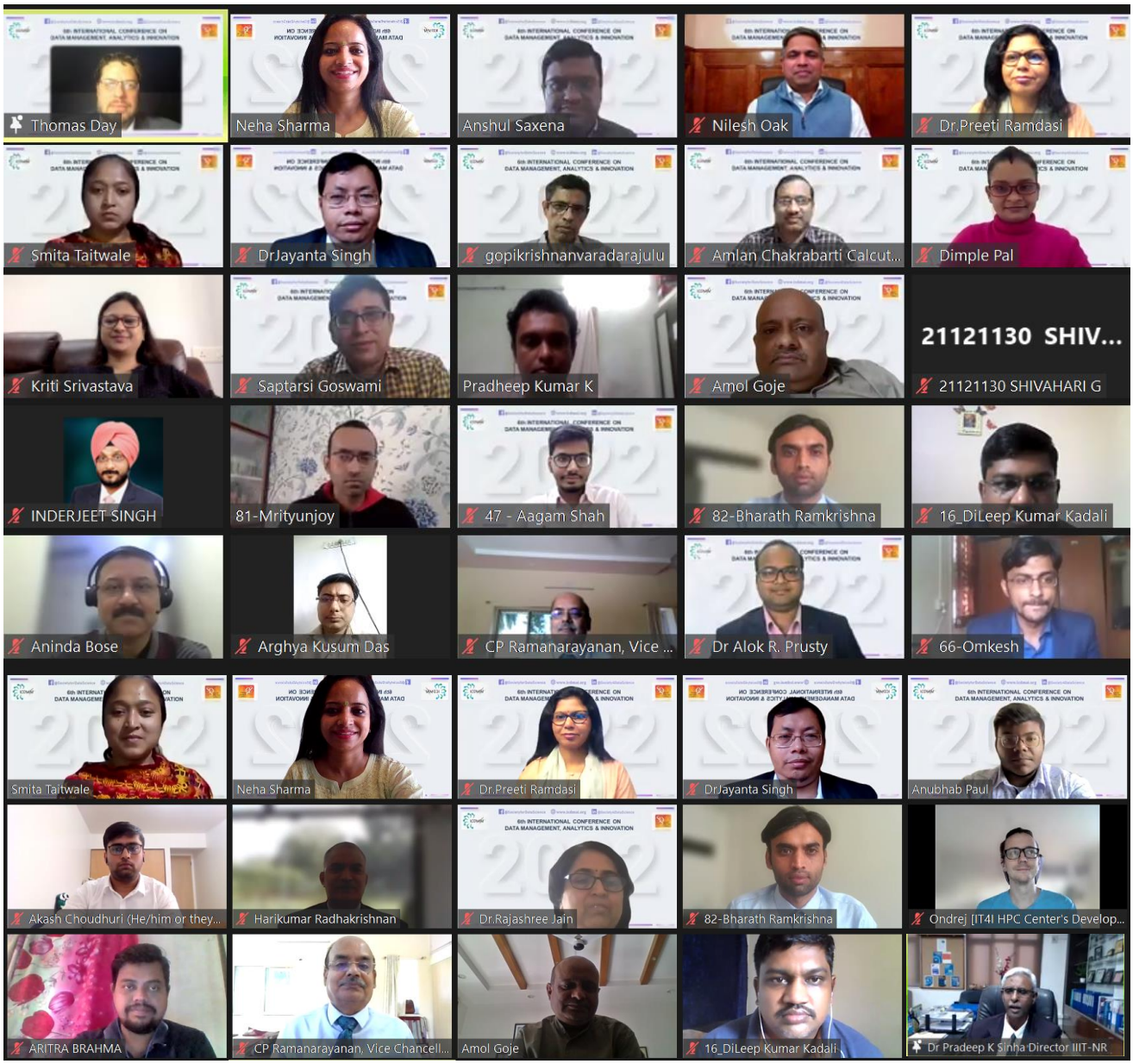
Name	Paper Title	Position	Track
Dr Sanjeev Manchanda	End to End Agile and Automated Machine Learning Framework for Trustworthy, Reliable and Sustainable Artificial Intelligence	First	Machine Learning
Shivani Nigam	Automated Structured Data Extraction from Scanned Document Images	First	Machine Learning
Jayaraman Valadi	Support Vector Machines and Random Forest Classification models for identification of Stability in Extrusion Film Casting Process	Second	Machine Learning
Arghya Kusum Das	Augmented Feature Generation using Maximum Mutual Information Minimum Correlation	Second	Machine Learning
Ninaada M S	Drone Integrated Detection and Rebarbative System with Variable Frequency for Agricultural Farm Invading Animals	Third	Machine Learning
Mrityunjoy Panday	Topic Modelling Based Semantic Search	Third	Machine Learning
Hari Kumar Radhakrishnan	Machine Learning based Automated Process for Predicting the Anomaly in AIS Data	Second	Machine Learning
Sumukh Sirmokadam	Speech To Text for Data Entry - Opportunities and Challenges	First	AI & DEEP Learning

Ashish Shrikrushna Kathe	COVID-19 Regulations Check: Social Distancing, People Counting and Mask Wear Check	First	AI & DEEP Learning
Shakeeb Ahmad Mohammad Mukhtar	Urdu & Hindi Poetry Generation using Neural Networks	Second	AI & DEEP Learning
Dr Amol R Madane	Design and Implementation of Surround View Monitoring System in View of Autonomous Vehicle	Second	AI & DEEP Learning
Isha Sanjay Joglekar	Implementation of Open Domain Question Answering System	Third	AI & DEEP Learning
Suchandra Dutta	Depression Detection from Twitter Data using Two Level Multi-modal Feature Extraction	Third	AI & DEEP Learning
Pradheep Kumar K	Sky Computing Smart Locality Aware approach for Health Analytics	Third	Enabling Technologies & Applications
Samiran Ghosh	A data science approach to evaluate drug effectiveness: Case Study of Remdesivir for Covid-19 patients in India	First	Data Science Techniques for Handling Pandemic

Finally, **Dr. Amol Goje**, President, Society for Data Science, delivered a **Vote of Thanks.** Sir payed gratitude to all the Track Chairs and Session Chairs for their un-tiring efforts in evaluating the papers and being unbiased in the selection of papers for awards. He also appreciated authors for their quality submissions and encouraged them to participate in ICDMAI 2023. Sir, also thanked all the partners and guests for their gracious presence and profuse support. He further announced the **venue of next ICDMAI 2023 at DIAT, Pune**. At the end, shared the plan for next year, the offerings of S4DS and the vision for data science community at national and global level.

Vote of Thanks and Announcement of Venue for ICDMAI 2023 by Dr. Amol Goje on 16 January 2022, ICDMAI 2022

Aristotle quoted that "**Excellence is never an accident. It is always the result of high intention, sincere effort, and intelligent execution; it represents the wise choice of many alternatives - choice, not chance, determines your destiny**". As per the Technical Programme Committee of ICDMAI 2022, the efforts, innovation, intelligent execution presented by all the delegates were exemplary and an achievement in itself. At the end, Delegates were informed that their certificate would be couriered to their address and requested them to submit their feedback. ICDMAI 2022 concluded with a promise to raise the standards further to create a new benchmark and officially bid adieu to everyone.

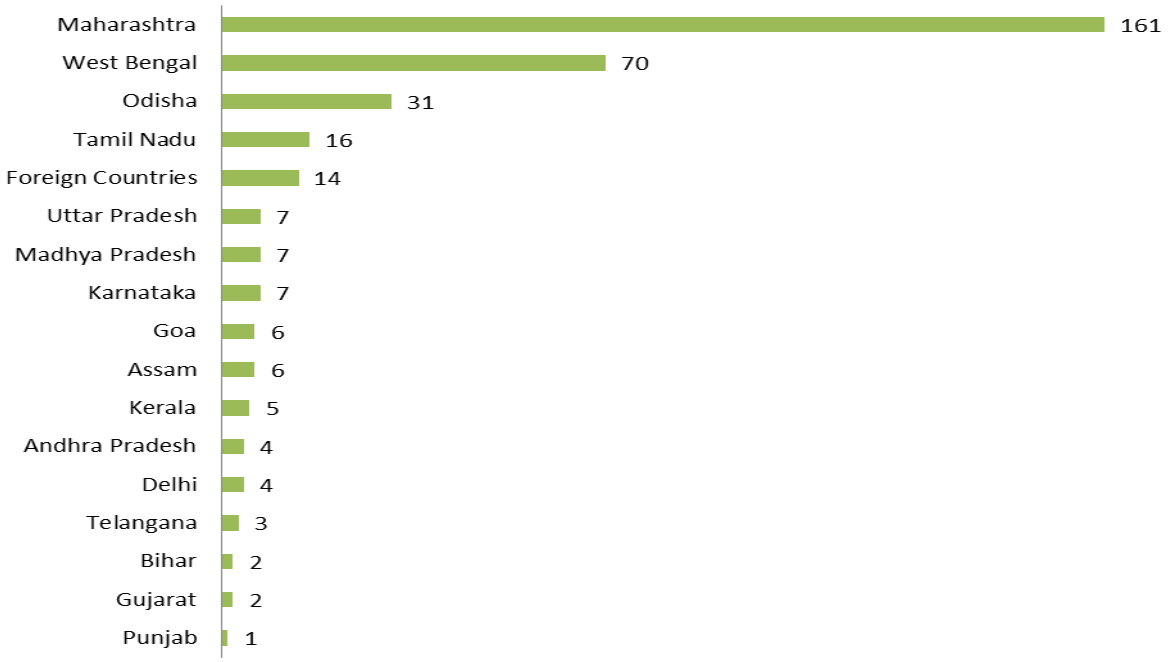


Glimpses of Guests, Delegates and Participants on 16 January 2022 at ICDMAI 2022

12. ICDMAI-2021 PAPER SUBMISSION METRICS

12-A. Response to the Conference

Call for Paper was announced and information was uploaded on the conference website on 15th March 2021. The conference started receiving papers from all the states of our country as well as from international community. Considering the pandemic situation, the submission of total **101 research papers** to ICDMAI 2022 by around **250 authors / researchers** and **total 346 Contributors** from industry and academia, can be considered decent. The graph below shows the statistics of number of participants from abroad, industry, premier institutions of India (NITs, IITs, IIMs and IIITs) and participants from Indian states as well as foreign:



Statistics Participation at ICDMAI 2022

12-B. Review Process

1) Solicited papers in five tracks through Call for paper
2) Conducted plagiarism check for the submitted paper in respective track using Turnitin Software.
3) Depending on the result, took appropriate action from the following options: -
    a. If Plagiarism > 50%, then Rejected the submission and informed the author
    b. If Plagiarism < 50 % and > 20%, then asked the author to improve the paper further
    c. If Plagiarism < 20 %, then informed the author regarding provisional acceptance for review
4) Assign each paper to the three appropriate Reviewers for Double Blind-review.
5) Pursue with the reviewers and encourage them to submit timely review report.
6) Shared the reviews with authors and ensured that the suggestions have been incorporated fully.

12-C. ICDMAI 2022 Metrics

101 Research papers have been submitted for ICDMAI 2022 and out of them only 50 papers are selected for oral presentation. The details of the paper selection and registration statistics are given below:-

Particulars	Information
Total paper received	101
Paper selected after double blind review	**50**
Number of Contributors (Authors + Listener + Session Chairs + Track Chairs + Speakers + Volunteers)	346
Total Delegates registered for ICDMAI 2022	**70**
Total papers presented at the conference	50
Absenteeism	00
Total attendance at ICDMAI 2022	136
Number of Indian States from where papers were received	16

Participation in ICDMAI 2022

Industries	Academia	Countries
Tata Consultancy Services	NEILIT	India
IBM	DIAT	United Kingdom
Wizertech	BITS Pilani	Japan
Alta Tecnologia	IIT Patna	Czech Republic
Peerless Hospitals	NIT Patna	United States
Mastek Ltd.	DSPM IIIT- Naya Raipur, India	Israel
Indian Navy	Technical University, Ostrava,	Romania
	University of Arad, Romania	Brazil
	Technion – Israel Institute of Technology	
	Smart Campus, Facens, Brazil	

12-D. Paper Presentation Session Summary

Paper presentations were carried out in three sessions, and each session was further divided into five parallel tracks of 60 mins each. Details of 05 tracks are as follows:

Track 1: Machine Learning
Track 2: AI and Deep Learning
Track 3: Data Storage, Management and Innovation
Track 4: Enabling Technologies and Applications
Track 5: Data Science Techniques for Handling Epidemic, Pandemic

Session 01 and Session 02 were conducted on 15 January 2022, whereas Session 03 was conducted on 16 January 2022. Total 50 papers were presented in different tracks. Each track had a dedicated Track Chairs and two Session chairs to evaluate the papers presented by Delegates and Student Volunteers. The evaluation parameters to evaluate the paper presentation were - Depth of Literature survey, Material Methods Used, Experimental Result, Conclusion Drawn and Relevance to the Industry/Society. Time allotted was 10 mins for presentation and 05 mins for Question & Answer.

Track Chairs at ICDMAI 2022
Top Line (L to R) – Dr. Preeti Ramdasi, Prof. Anshul Saxena, Ms. Smita Taitwale, Ms. Dimple Pal
Bottom Line (L to R) – Prof. Swati Satpute, Prof. Santanu Das, Dr Kriti Srivastava, Dr. Pradnya Muley

The details of the track wise paper presentations are given below:

ICDMAI 2022

6th INTERNATIONAL CONFERENCE ON DATA MANAGEMENT, ANALYTICS AND INNOVATION

(14-16 January 2022)

Venue: Virtual Platform

				Venue -->	Virtual Room 1	Virtual Room 2	Virtual Room 3	Virtual Room 4	Virtual Room 5
15-Jan-21	Time	Min(s)	Session		6A Track 1 MACHINE LEARNING	6B Track 1 MACHINE LEARNING	6C Track 2 AI & DEEP LEARNING	6 D Track 2 AI & DEEP LEARNING	
					Track Chair	Track Chair	Track Chair	Track Chair	
					Dimple Pal	Santanu Das	Smita Taitwale	Swati Satpute	
				Students Volunteer	Nirmalya Misra, Rajrup Banerjee, Shaygan Hallaj	Deeptendu Santa, Sayantan Dasgupta	Arithra Bramha, Vedang Watve, Anubhab	Monika chivate, Akanksha Gupta	
	12:15 - 13:15	60	Session 1		Session Chair 1: Dr. Alok Ranjan Prusty Session Chair 2: Poornima Iyengar	Session Chair 1: Dr. Jyoti Singh Session Chair 2: Dr. Jayanta Yumnam	Session Chair 1: Prof. Kateřina Slaninová Session Chair 2: Dr. Rajashree Jain	Session Chair 1: Dr. Preeti Ramdasi Session Chair 2: Prof. Tandra Pal	
	Time	Min(s)	Session		10A Track 1 MACHINE LEARNING	10B Track 1 MACHINE LEARNING	10C Track 2 AI & DEEP LEARNING	10D Track 4 ENABLING TECHNOLOGIES AND APPLICATIONS	10E Track 3 DATA STORAGE, MANAGEMENT AND INNOVATION & Track 5 DATA SCIENCE TECHNIQUES FOR HANDLING EPIDEMIC, PANDEMIC
					Track Chair	Track Chair	Track Chair	Track Chair	Track Chair
					Dimple Pal	Dr.Kriti Srivastava	Anshul Saxena	Dr. Pradnya Mule	Swati Satpute
				Students Volunteer	Nirmalya Misra, Rajrup Banerjee, Shaygan Hallaj	Jai Jain, Dipta Chatterjee, Soumyadeep Kundu	Shivhari, Naba Siddqui	Aditya Patkar, Vinay Katti	Monika chivate, Akanksha Gupta
	16:00 - 17:15	75	Session 2		Session Chair 1: Amol Dhonse Session Chair 2: Dr. Preeti Ramdasi	Session Chair 1: Mani Madhukar Session Chair 2: Poornima Iyengar	Session Chair 1: Prof. Regiane Relva Romano Session Chair 2: Dr. Prithwis De	Session Chair 1: Dr. Vikas Garg Session Chair 2: Prof. Kanak Saxena	Session Chair 1: Prof. Mary Saujanya Session Chair 2: Dr. Seema Purohit
16-Jan-21	Time	Min(s)	Session		14A Track 1 MACHINE LEARNING	14B Track 1 MACHINE LEARNING	14C Track 2 AI & DEEP LEARNING	Students Paper	
					Track Chair	Track Chair	Track Chair		
					Santanu Das	Smita Taitwale	Dr. Kriti Srivastava		
					Students Volunteer	Students Volunteer	Students Volunteer		
				Students Volunteer	Deeptendu Santa, Sayantan Dasgupta	Arithra Bramha, Vedang Watve, Anubhab	Jai Jain, Dipta Chatterjee, Soumyadeep Kundu		
	11:00 - 12:00	60	Session 3		Session Chair 1: Kranti Athalye Session Chair 2: Dr. Jyoti Singh	Session Chair 1: Dr. Rajashree Jain Session Chair 2: Dr. Jayanta Yumnam	Session Chair 1: Dr. Alok Ranjan Prusty Session Chair 2: Amol Dhonse	Session Chair 1: Prof. Amlan Chakrabarti Session Chair 2: Dr. Saptarsi Goswami	

1st Session: 15 January 2022

1st Session 6A | Track I: Machine Learning | Track Chair: Dimple Pal
Session Chairs: Alok Ranjan Prusty, Poornima Iyengar

Neelam Chandolikar, Rishav Raj and Rohit Mujumdar **Recognizing similar relationships within ontology to fine tune Ontology**
Shalu Gupta and Yumnam Jayanta Singh **Object Detection using Peak, Balanced Division Point and Shape based Features**
Sanjeev Manchanda **End to End Agile and Automated Machine Learning Framework for Trustworthy, Reliable and Sustainable Artificial Intelligence**
Shivani Nigam **Automated Structured Data Extraction from Scanned Document Images**

1st Session 6B | Track I: Machine Learning | Track Chair: Santanu Das
Session Chairs: Jyoti Praksh Singh, Dr. Jayanta Yumnam

Pallavi Roy, Aritra Brahma, Saptarsi Goswami and Soumya Sen
Effective Sentiment Analysis of Bengali Corpus by using the Machine Learning approach

Rajeshwari Gundla and Sachin Gengaje
Review on Android Malware Detection System

Chongtham Rajen Singh and Dr. Gobinath R
Hypothesis Testing of Tweet Text using NLP

Sonia Bhattacharya and Himadri Chakrabarty Bhattacharyya
Forecasting Severe Thunderstorm by applying SVM Technique on Cloud imageries

1st Session 6C | Track II- AI & Deep Learning | Track Chair: Smita Taitwale
Session Chairs: Prof. Kateřina Slaninová, Rajashree Jain

Sonam Sharma
Regulations 4.0: Digitally Transforming the Regulatory Space

Sumukh Sirmokadam
Speech To Text for Data Entry - Opportunities and Challenges

Rituparna Pal and Satyajit Chakrabarti
A Gamification Architecture For Online Learning Platform using Neural Network

Sayali Oak, Tanvi Shroff, Anagha Kulkarni, Rutuja Jadhav and Vedanti Donkar
Literature Review on Sign Language Generation

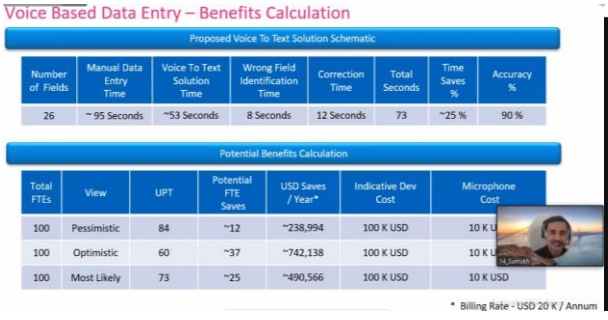
1st Session 6D | Track II- AI & Deep Learning | Track Chair: Swati Satpute
Session Chairs: Preeti Ramdasi, Prof. Tandra Pal

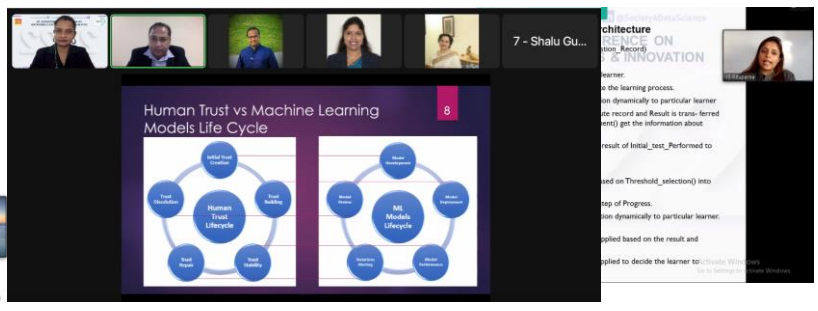
Yogita Bacchewar, Suchitra Morwadkar, Rutuja Chandegave, Pooja Dendage and Seema Dhamgunde
Indoor Navigation Using Augmented Reality

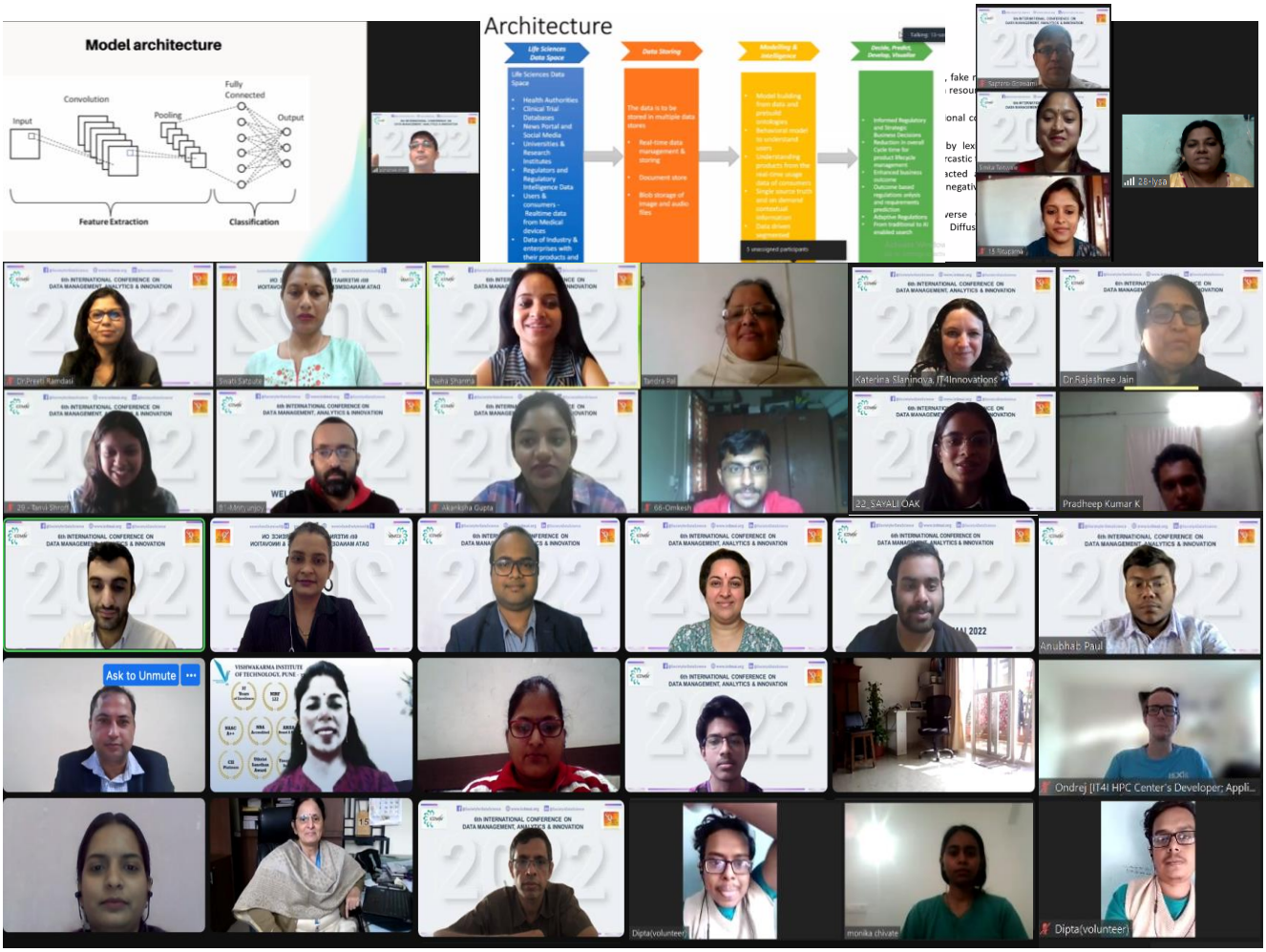
Shruti Vasave, Abhishek Shah, Pratik More, Pushkar Joglekar and Hrishikesh Hirde
Foreign object detection on an assembly line

Dr. Renuga Devi R and Lysa Eben J.
Inverse Contexture Abstractive Term Frequency Model using Surf Scale Diffusive Neural Network for analysis of fake social content in public forum

Tanvi Shroff, Sayali Oak, Anagha Kulkarni, Vedanti Donkar and Rutuja Jadhav
Literature Review on Machine Translation Systems for Sign Language Generation







Glimpses of Delegates, Track Chairs, Session Chairs, Session Coordinator and Participants in Session I on 15 January 2022

2nd Session: 15 January 2022

2nd Session 10 A | Track I: Machine Learning | Track Chair: Dimple Pal
Session Chairs: Preeti Ramdasi, Amol Dhondse

Sonam Jawahar Singh and Tanmay Tulsidas Verlekar **Breast Cancer Prediction using Auto-encoders**
Zhengtong Pan, Patrick Soong and Setareh Rafatirad **Ontology-Driven Scientific Literature Classification using Clustering and Self-Supervised Learning**
Bilal Abdualgalil, Sajimon Abraham, Waleed M **Ismael and Dais George. Modeling and forecasting Tuberculosis cases using machine learning and deep learning approaches: A Comparative Study**
Dr Raghunandan G H, Ninaada M S and Keerthana R **Drone Integrated Detection and Rebarbative System with Variable Frequency for Agricultural Farm Invading Animals**

2nd Session 10 B | Track I: Machine Learning | Track Chair: Dr.Kriti Srivastava
Session Chairs: Dr. Mani Madhukar, Poornima Iyengar

Mayur Pandya, Renu Dhadwal and Jayaraman Valadi
Support Vector Machines and Random Forest Classification models for identification of Stability in Extrusion Film Casting Process

Akalbir Singh Chadha, Yashowardhan Shinde, Neha Sharma and Prithwis Kumar De
Predicting CO2 emissions by Vehicles using Machine Learning

Arghya Kusum Das, Saptarsi Goswami, Amit Kumar Das, Amlan Chakrabarti and Basabi Chakraborty
Augmented Feature Generation using Maximum Mutual Information Minimum Correlation

Aryam Sood, Hiteshi Oza, Neha Sharma and Prithwis Kumar De
Impact of Energy Sector on Climate Change in India using Forecasting Models

2nd Session 10 C | Track II - AI & Deep Learning | Track Chair: Anshul Saxena
Session Chairs: Dr. Prithwis De, Regiane Relva Romano

Poulomi Samanta, Piyush Kumar, Suchandra Dutta, Moumita Chatterjee and Dhrubasish Sarkar
Depression Detection from Twitter Data using Two Level Multi-modal Feature Extraction

Ashish Kathe, Pranav Teli and Amol R. Madane
COVID-19 Regulations Check: Social Distancing, People Counting and Mask Wear Check

Shakeeb Ahmad and Pushkar Joglekar
Urdu & Hindi Poetry Generation using Neural Networks

Dipti Pawade, Avani Sakhapara, Isha Joglekar and Deepanshu Vangani
Implementation of Open Domain Question Answering System

Apeksha Kamble, Akanksha Singh, Damini Thusoo and Amol R. Madane
Design and Implementation of Surround View Monitoring System in View of Autonomous Vehicle

2nd Session 10 D | Track IV - Enabling Technologies & Applications | Track Chair: Dr. Pradnya Mule
Session Chairs: Prof. Kanak Saxena, Dr. Vikas Garg

Pradheep Kumar K and Dhinakaran K
Sky Computing Smart Locality Aware approach for Health Analytics

Joyita Chakraborty and Dinesh K. Pradhan
Citation Biases: Detecting Communities from Patterns of Temporal Variation in Journal Citation Networks

Bharathidasan V S and Dr A Prema Kirubakaran
Enhancing the Performance of Multiple Wi-Fi Network

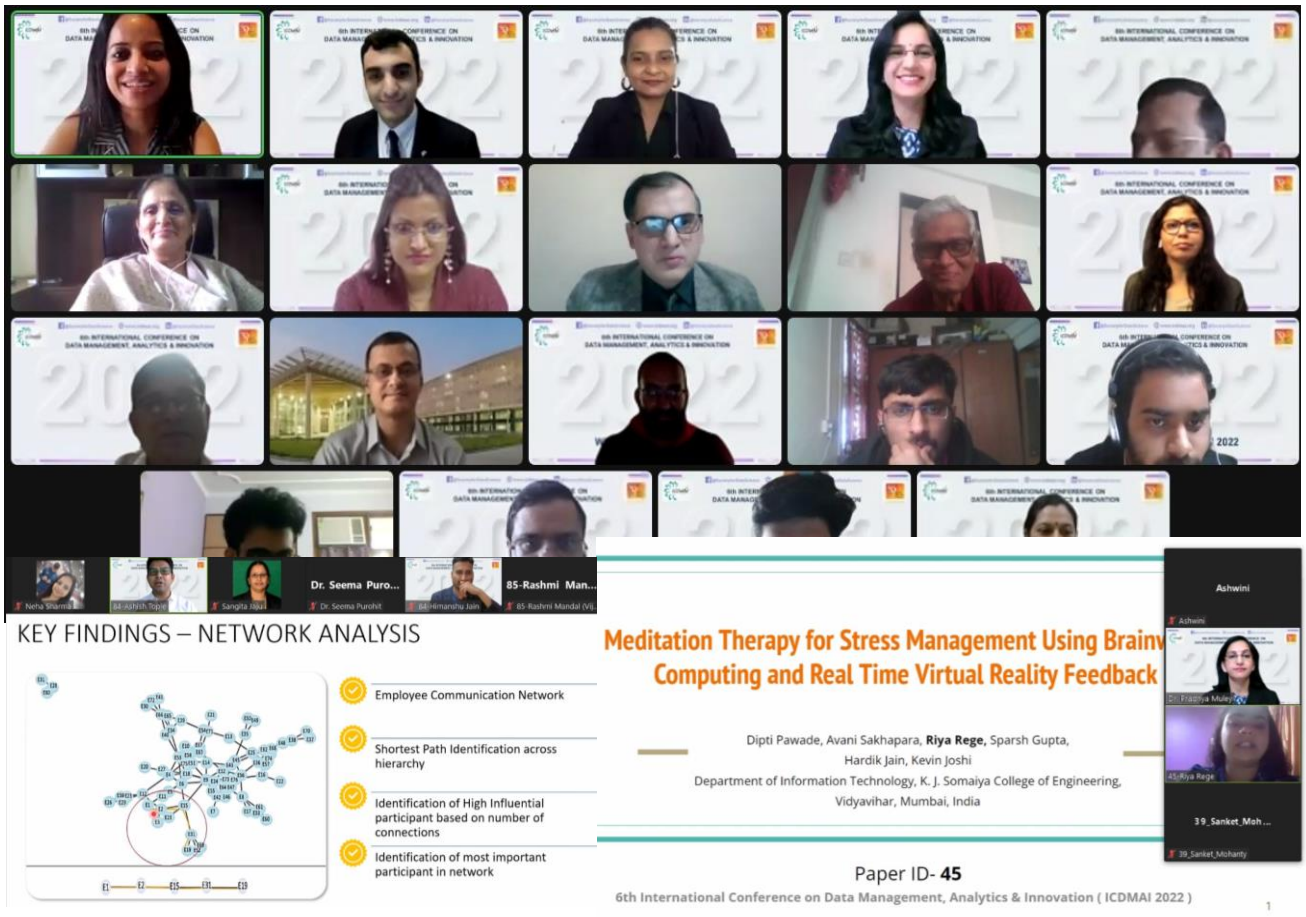
Sanket Mohanty and CRS Kumar
ARCaddy: Augmented Reality App Suite for Aircraft Maintenance

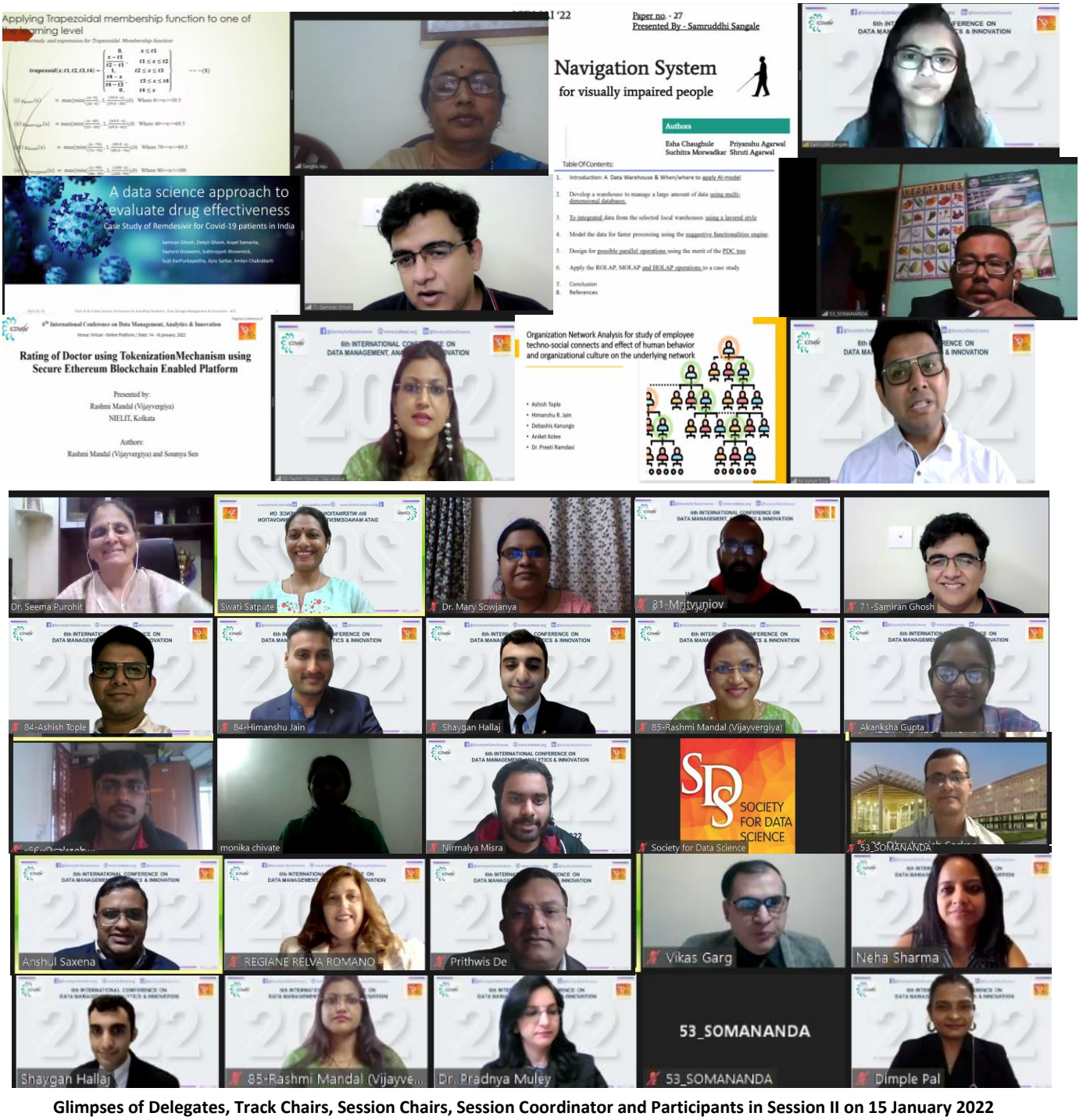
Dipti Pawade, Avani Sakhapara, Riya Rege, Hardik Jain, Kevin Joshi and Sparsh Gupta
Meditation Therapy for Stress Management Using Brainwave Computing and Real Time Virtual Reality Feedback

Sarthak Khandelwal, Neha Sharma, Prithwis Kumar De
Real Time Carbon Emissions Calculator for Personal Computers

2nd Session 10 E | Track-III & V Data Science Techniques for handling Pandemic , Data Storage Management & Innovation | Track Chair: Swati Satpute
Session Chairs: Dr. A. Mary Sowjanya, Dr. Seema Purohit

Sangita Jaju, Sudhir Jagtap and Rohini Shinde **A SoftComputing Approach for Predicting and Categorising Learner's Performance using Fuzzy Model**
Ashish Tople, Himanshu R Jain, Debashis Kanungo, Aniket Vinayak Kolee and Preeti Ramdasi **Organization Network Analysis for study of employee techno-social connects and effect of human behavior and organizational culture on the underlying network**
Rashmi Mandal Vijavyvergiya and Soumya Sen **Rating of Doctor using Tokenization Mechanism using Secure Ethereum Blockchain Enabled Platform**
Samruddhi Sangale, Shruti Agarwal, Esha Chaugule, Priyanshu Agarwal and Suchitra Morwadkar **Navigation System for Visually Impaired People**
Yumnam Somananda Singh, Pranab Das, Kirani Yumnam and Yumnam Jayanta Singh **Design aspects of a Multi-dimensional Hybrid analytical processing system**
Samiran Ghosh, Debjit Ghosh, Koyel Samanta, Saptarsi Goswami, Subhrojyoti Bhowmick, Sujit Karpurkayastha, Ajoy Sarkar and Amlan Chakrabarti **A data science approach to evaluate drug effectiveness: Case Study of Remdesivir for Covid-19 patients in India**





Glimpses of Delegates, Track Chairs, Session Chairs, Session Coordinator and Participants in Session II on 15 January 2022

3rd Session: 16 January 2022

3rd Session 14 A | Track I- Machine Learning | Track Chair: Santanu Das
Session Chairs: Jyoti Praksh Singh, Kranti Athalye

Aritra Ray and Amlan Chakrabarti
Towards Efficient Edge Computing Through Adoption of Reinforcement Learning Strategies: A Review

Samik Basu, Arkadip Maitra, Soumen Halder, Soumya Pandit, Soma Barmanmandal, Pritha Banerjee and Amlan Chakrabarti
Machine Learning based Earthquake Early Warning (EEW) System: A case study of Himalayan Region

Mrityunjoy Panday and Sushmita Sahu
Topic Modelling Based Semantic Search

3rd Session 14 B | Track I- Machine Learning | Track Chair: Smita Taitwale
Session Chairs: Rajashree Jain, Dr. Jayanta Yumnam

Dileep Kumar Kadali, M Chandra Naik and R.N.V. Jagan Mohan
Estimation of Data Parameters Using Cluster Optimization

Harikumar Radhakrishnan, Dr C.P. C P and Bharath Ramkrishna
Machine Learning based Automated Process for Predicting the Anomaly in AIS Data

Akash Choudhuri
A Hybrid Machine Learning Model for Estimation of Obesity Levels

3rd Session 14 C | Track II-AI & Deep Learning | Track Chair: Dr. Kriti Srivastava
Session Chairs: Dr. Vikas Garg, Alok Ranjan Prusty

Avani Sakhapara, Dipti Pawade, Ankita Patil, Naitik Rathod, Mohit Vadsak and Aagam Shah
Generation of Indian Sign Language Animation from Audio and Video Content using Natural Language Processing

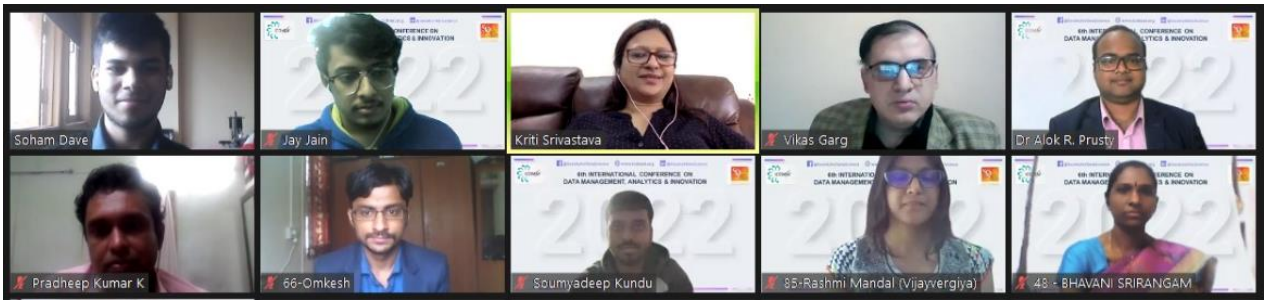
Bhavani Srirangam and Dr. Subhash Chandra N
Histogram Based Initial Centroids Selection for K-Means Clustering

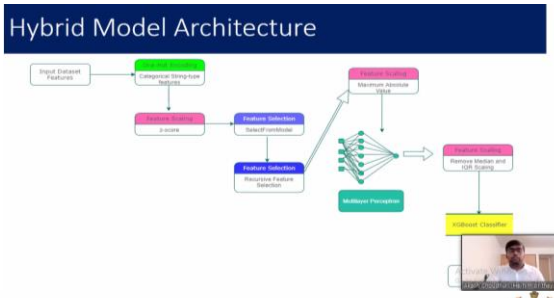
Parth Kansara, Soham Dave, Dr. Vinaya Sawant and Shivam Mehta
Siamese Network-based system for criminal identification

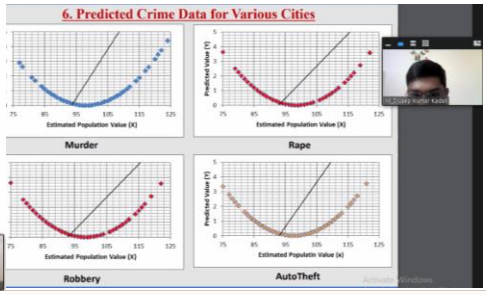
3rd Session 14 D | Track – Student Papers | Track Chair: Dr. Saptarsi Goswami
Session Chairs: Prof. Amlan Chakrabarti

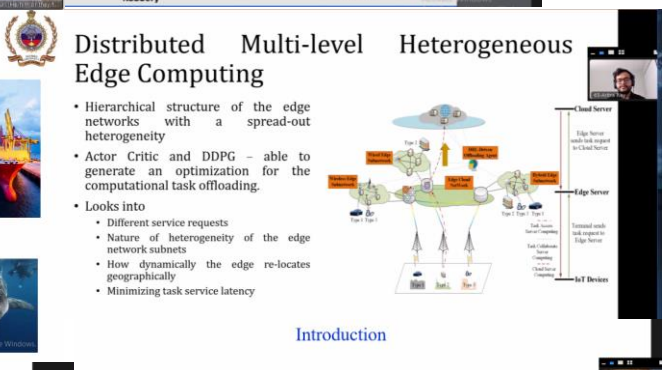
Omkesh Munde and Swati Ghule
Jal-Kachara Bot Model: A remedy for floating waste on water bodies.

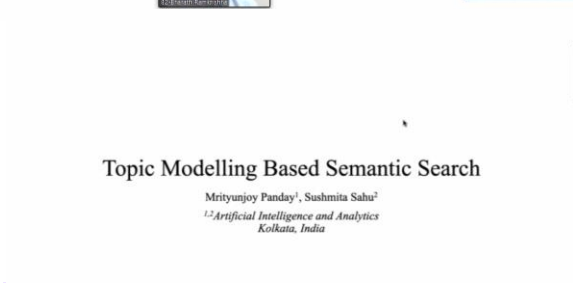
Rujuta Chopade and Prof. Swati Ghule
A Study Of Parasitic Computing

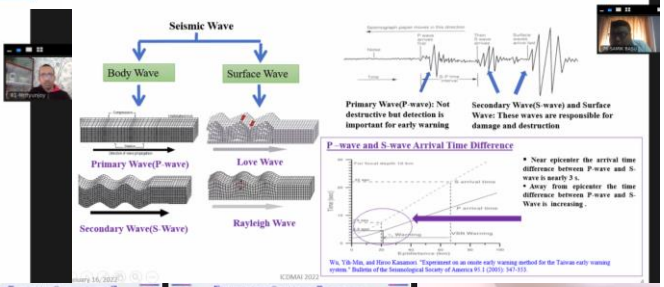


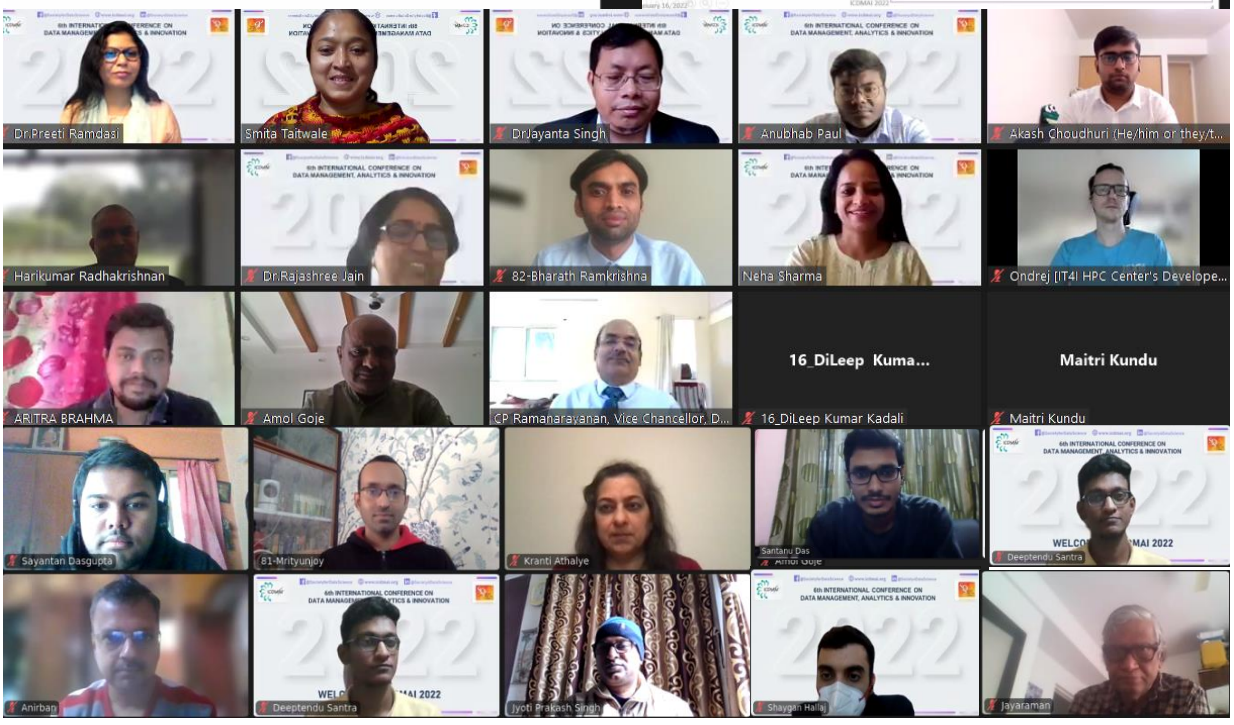












Glimpses of Delegates, Track Chairs, Session Chairs, Session Coordinator and Participants in Session III on 16 January 2022

All the Tracks were brilliantly managed by Track Coordinators and Volunteers.

13. FEEDBACK

Obtaining feedback from the conference guests/delegates helps the organizer of the conference to strengthen the retrospection aspects to conduct similar kind of event in future. The feedback that we received in the form of video clip from all the conference participants was overwhelming and the same has been compiled and depicted in below given table which was collected through the feedback form.

Category	About conference theme, arrangements, guest speakers, etc.	Ideas / improvements for the next conference	Overall Remarks
Guests	Innovative ideas discussed, Topical theme, Excellent arrangements	Separate track for research scholars & students	Excellent Event Management, Cohesive Team
Paper Presenters	Very much contemporary Conference, Excellent keynote speakers, overall good arrangements		Overall very good Experience

Takeaways from the International Conference

Students:

The students and research scholars got the exposure to various national and international guests and speakers. Some of the student volunteers also got the opportunity to have one-to-one (face-to-face) interaction with all the invited speakers of the conference.

Professionals from Academia and Corporate:

Professionals got the opportunity to exchange their knowledge, thoughts, innovations and research experiences in the broad field of Data Management, Analytics and Innovation on the common platform

with the renowned experts from India and abroad. Thought provoking discussions and interactions with the keynote speakers of international repute and the delegates from different parts of the country, had already sown the seeds which will start sprouting in due course by way of academic and research collaborations, faculty exchange, invited talks, panel discussion events, etc. The research paper presented by the professionals will be soon published in the world's most read digital resource, SPRINGER.

Society for Data Science:

We have been striving to create a collaborative platform to promote Innovation around Data Science, for bringing together technical experts across Industry, Academia, Government Labs and Professional Bodies. The main focus is on strengthening the student community and enhancing the industry participation in S4DS activities across globe. We at S4DS are committed to take out at least some time to apply our skills and strengths in bringing positive difference in the community. The conference has further strengthened the overall brand image across globe. The society could successfully make a mark of its Excellence by holding this prestigious event.

14. MEDIA COVERAGE

Tuesday ■ January 18 ■ 2022 The Hitavada

Director IIIT-NR Dr Sinha gets 'Lifetime Achievement Award'

■ Staff Reporter
RAIPUR, Jan 17

DR PRADEEP K Sinha, Director IIIT-NR, has been awarded the 'Lifetime Achievement Award' for his contributions to the field of Data Science and Information Technology by the Society for Data Science (S4DS).

The award was announced on Sunday during the valedictory session of the 'International Conference on Data Management, Analytics & Innovation 2022 (ICDMAI 2022)', which was held in virtual mode on January 15-16.

Three other academicians and scientists who were conferred this award on the same platform for their exemplary contributions to the field are Dr C P Ramanarayanan, Vice Chancellor, Defence Institute of Advanced Technology (DIAT), Pune; Admiral Radhakrishnan Hari Kumar, the Chief of the Naval Staff (India); and professor Valentina E Balas, AurelVlaicu University, Arad, Romania.

Dr Pradeep K Sinha

The award is recognition of the growing popularity of IIIT-NR nationally and internationally and the support provided by the State Government for its growth, said Dr. Sinha.

"I attribute this award to the hard work put in by the faculty and staff members of the institute as well as the students," said Dr Sinha.

Foreseeing the immense demand arising for experts in Data Science and Artificial Intelligence in the near future, Dr Sinha played a vital role in introducing new BTech and MTech programs in Data Science & Artificial Intelligence (DSAI) in IIIT-NR, in the year 2019, making IIIT-NR one of the first institutes in the country to have such a program. Today, this branch of engineering is the most sought after branch among the students seeking admission in IIIT-NR.

Dr Sinha has been deeply involved in building IIIT-Naya Raipur as a premier academic institute of the country since 2015. Earlier he was with the Centre for Development of Advanced Computing (C-DAC), where he had led national programs in the areas of Supercomputing, Grid Computing, and Health Informatics. During his professional career spanning more than thirty-five years, Dr Sinha has significantly contributed to the advancement of Science & Technology and Technical Education. His technical contributions include premier academic institutes, supercomputing systems and facilities, healthcare products and solutions, international patents, a number of technical papers, and six books in the area of Computer Science & Engineering.

Society for Data Science (S4DS) is a non-profit professional association to create a collaborative platform for bringing together technical experts across industry, academia, Government labs and professional bodies to promote innovation around Data Science.

Office Bearers of Society for Data Science
Top Line (L to R) – Dr. Amol Goje, Dr. Amlan Chakrabarti, Dr. Neha Sharma
Bottom Line (L to R) – Col. Dr. Inderjit Barara, Dr. Saptarsi Goswami

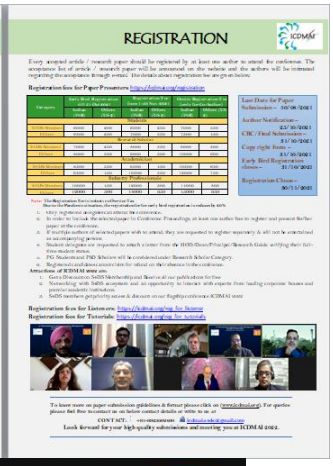
Annexure A

Conference Brochure

6th International Conference
on
Data Management, Analytics & Innovation
Venue: Virtual Conference
Dates 14 – 16 January, 2022
ICDMAI 2022
Conference Brochure
In Association With
NIELIT

ICDMAI 2022
GENERAL CHAIRS
Dr. P.K. Sinha
Prof. Valentina Emilia Balas
EXECUTIVE MEMBERS OF SOCIETY FOR DATA SCIENCE
Amol Gaje
Amlan Chakrabarti
Neha Sharma
Inderjit Singh
Saptarsi Goswami
Atul Sangani
D.H.Manjaiah

TRACKS & TOPICS
Springer


REGISTRATION

ICDMAI
6th International Conference
On Data Management,
Analytics and Innovation
DR. MANI MADHUKAR
(International Business Machines Corp)
USING AI FOR AI
DR. K. P. RAY
(Defence Institute of Advanced Technology)
ATULYA: High Power Microwave System to neutralize COVID-19
DR. SRIPARNA SAHA
(Indian Institute of Technology, Patna)
SUMMARISATION SYSTEM
PRADIP SINHA
(Tata Consultancy Services)
Business Excellence Through Data Centricity
PRE-CONFERENCE
TUTORIAL/WORKSHOP SESSION
14th jan, 2022
ICDMAI - 2022
6th International Conference
On Data Management,
Analytics and Innovation
BISWAJIT MOHAPATRA
Partner and Executive Director, International Business Machines Corp
PADMASHRI SANKAR KUMAR PAL
National Science Chair, Distinguished Scientist & Former Director, Indian Statistical Institute
C. P. RAMANARAYANAN
FNAE, FAAIS, FIE
Vice Chancellor, Defence Institute of Advanced Technology (DIAT), Pune
DR. SUNDEEP OBEROI
Former Global Head of Cybersecurity Business Unit
KEYNOTE SPEAKERS
15th jan, 2022
ICDMAI - 2022
6th International Conference
On Data Management,
Analytics and Innovation
DINANATH KHOLKAR
Vice President, Global Head of Analytics & Insights, Tata Consultancy Services
PADMASHRI AMITA MALLIK
Head, Energy Environment and Climate Change (EECC) & Founder, Climate Collective, Pune
DR. PRIYADARSHINI KARVE
Managing Director, Samuchit Enviro Tech & Founder Director Orjallux LLP
PRAVIN BHAGWAT
Founder, 14 Trees Foundation
PANEL DISCUSSION:
DATA DRIVEN CLIMATE LITERACY AND
ACTIONABLE INSIGHTS
15th jan, 2022
ICDMAI - 2022
6th International Conference
On Data Management,
Analytics and Innovation
KEYNOTE SPEAKERS
16th jan, 2022

Annexure B

TECHNICAL PROGRAMME COMMITTEE

Technical Programme Committee – International

Ahmad Taher Azar	Faculty of Computers and Information, Benha University, Egypt
Akbar Sheikh Akbari	Leeds Beckett University, Leeds/UK
Al Marcella	Walker School of Business and Technology, Webster University, St. Louis, Missouri, USA
Anand Paul	Kyungpook National University, Daegu, South Korea
Anca Ralescu	University of Cincinnati, USA
Andreja Pucihar	University of Maribor, Kranj, Slovenia
Andrey V. Savchenko	National Research University Higher School of Economics, Russia
Angelo Genovese	Università degli Studi di Milano, Italy
Anna Forster	University of Bremen, Germany
Arthur Tatnall	Victoria University, Melbourne, Australia
Asadullah Shaikh	Associate Professor, College of Computer Science, Najran University, Saudi Arabia
Biju Issac	School of Computing, Media and the Arts, Teesside University Middlesbrough, England, UK
Birjodh Tiwana	Linkedin, California
Cenap Ozel	Department of Mathematics, King Abdulaziz University, Kingdom of Saudi Arabia
Cheickna Sylla	New Jersey Institute of Technology, Newark, NJ, USA
Chuan-Ming Liu	Purdue University
Damien Hanyurwimfura	University of Rwanda
Doug Vogel	Chief Academic Director, Management Science and Engineering, Harbin Institute of Technology, Harbin, P. R. of China
Emil Pricop	Oil & Gas University of Ploiești, Romania
Ernst Leiss	University of Houston, USA
Fuqian Shi	Rutgers Cancer Institute of New Jersey, Brunswick, USA
Gabor Kiss	Obuda University, Budapest, Hungary
George A Tsihrintzis	University of Piraeus, Greece
Guido Ongena	University of Applied Sciences Utrecht, The Netherlands
Guneratne Wickremasinghe	College of Business, City Flinders Campus, Victoria University, Melbourne, Australia
Günter Fahrnberger	Ing. Dipl.-Inform., Faculty of Mathematics and Computer Science
Guojun Wang	School of Computer Science and Educational Software, Guangzhou University, Guangzhou, P. R. China
Hanaa Hachimi	Ibn Tofail University, National School of Applied Sciences "UIT-ENSA",

	Kenitra, Morocco
Helen Cripps	Edith Cowan University, Perth, Australia
Imed Kacem	Directeur du LCOMS, Université de Lorraine
Indrit Troshani	University of Adelaide, Australia
Jafar Ahmad Abed Alzubi	Wake Forest University, North Carolina – USA
Jan Martinovic	IT4 Innovations National Supercomputing Centre of the Czech Republic, VŠB Technical University of Ostrava
Janusz Kacprzyk	Fellow of IEEE, IET, IFSA, ECCAI, SMIA Full Member, Polish Academy of Sciences Member, Academia Europaea Member, European Academy of Sciences and Arts Foreign Member, Bulgarian Academy of Sciences Foreign Member, Foreign Member, Spanish Royal Academy of Economic and Financial Sciences (RACEF) President, Polish Operational and Systems Research Society Past President of IFSA (International Fuzzy Systems Association)
Jiří Dvorský	IT4Innovations, VSB – Technical University of Ostrava, Czech Republic
Joerg Leuke	University of Hohenheim, Stuttgart, Germany
Johan Versendaal	University of Applied Sciences Utrecht, The Netherlands
Juergen Seitz	Baden-Wuerttemberg Cooperative State University, Heidenheim, Germany
Jyotir Moy Chatterjee	Lord Buddha Education Foundation (Asia Pacific University of Technology & Innovation), Kathmandu, Nepal
Kateřina Slaninová	IT4Innovations, VŠB – Technical University of Ostrava, Czech Republic
Kazumi Nakamatsu	University of Hyogo, Himeji, Japan
Madhav Sigdel	Data Scientist, CareerBuilder, LLC, Atlanta, USA
Marek Lampart	IT4Innovations, VSB – Technical University of Ostrava, Czech Republic
Mario Jose Divan	Universidad de La Pampa, Argentina
Marius M. Balas	Aurel Vlaicu University of Arad, Romania
Masoud Mahammadian	University of Canberra, Australia
Matt Glowatz	University College Dublin, Ireland
Md Asri Bin Ngadi	Universiti Teknologi Malaysia, Johor, Malaysia
Mohd Helmy Abd Wahab	University Tun Hussein Onn Malaysia, Batu Pahat, Johor
Naveen Chilamkurti	La Trobe University, Melbourne, Australia
Nicolae Paraschiv	Oil & Gas University of Ploiești, Romania
Nilmini Wickramasinghe	Swinburne University in Melbourne
Oana Geman	Stefan Cel Mare Suceava University, Romania
Ozen Ozer	Kırklareli University,Turkey

Pascal Ravesteijn	University of Applied Sciences Utrecht, The Netherlands
Pierre Borne	FIEEE, Central School of Lille, France
Pr. Pascal Lorenz	University of Haute Alsace IUT - 34 rue du Grillenbreit 68008 Colmar - France
Reima Suomi	University of Turku, Finland
Richard D. Evans	University of Westminster, UK
Roger Bons	FOM University, Germany
Saman Halgamuge	Melbourne India Postgraduate Program (MIPP)
Sanjay Misra	College of Science and Technology, Covenant University, Nigeria
Sheng-Lung Peng	National Dong Hwa University, Hualien, Taiwan
Shukor Sanim Mohd Fauzi	Universiti Teknologi MARA, Malaysia
Soumya Banerjee	CEDRIC Lab. Paris, France
Subramaniam Ganesan	Director, Real Time Embedded DSP Systems Lab, Oakland University, Rochester, USA
Surinder Dhanjal	Thompson Rivers University, KAMLOOPS, CANADA
Tatjana Goraeva	Yanka Kupala State University of Grodno, Belarus
Tsung-Chih Lin	Feng Chia University, Taichung, Taiwan
Zhen Zhu	China University of Geosciences, Wuhan, P. R. of China

Technical Programme Committee – National (Indian)

A. S. Hiwale	MIT College of Engineering, Pune
Archana Chougule	Sanjay Ghodawat University, Kolhapur
Ambikapathy	Galgotia College of Engineering and Technology,Greater Noida, UP. India
A.C.Suthar	L J Institute of Engineering & Technology, Ahmedabad,Gujarat
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Abhay Bansal	Amity School Of Engineering & Technology E3 Block, Third Floor, Amity University Campus
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Alok Ranjan Prusty	Government of India
Amit Doegar	National Institute of Technical Teachers Training & Research (NITTTR) Chandigarh
Amit Ganatra	Faculty of Technology and Engineering, Chandubhai S. Patel Institute of Technology, Charotar Institute of Technology- Changa, CHARUSAT
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Deepak Garg	Bennett University, Greater Noida, U.P.
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G.Varaprasad	BMS College of Engineering, Bangalore
Garje G.V.	PVG's COET, Pune
Gaurav Kumar	Magma Research and Consultancy Pvt. Ltd., Ambala, Haryana
Geeta Rana	Swami Rama Himalayan University, Dehradun
Gitanjali Shinde	Doaba Group of Colleges, Nawanshahr
Hardeep Singh	Dept. of Computer Science & Engineering,Guru Govind Singh University, Amritsar, Punjab
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