

# ICDMAI 2023

7<sup>th</sup> International Conference on  
Data Management, Analytics & Innovation

Venue: Defence Institute of Advanced Technology (DIAT, Pune)



20 – 22 January 2023

## REPORT



Report Prepared By: *Dr. Neha Sharma* Steering Committee Chair, ICDMAI 2023  
Founder Secretary, Society for Data Science

# ICDMAI 2023 Partners

## Technical Partner



## Publication Partner



## Knowledge Partners



## Academic Partners





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## ACKNOWLEDGEMENT

International Conference on Data Management, Analytics and Innovation (ICDMAI 2023) is a signature conference of Society for Data Science (S4DS), which is a not-for-profit professional association established to create a collaborative platform for bringing together technical experts across Industry, Academia, Government Labs and Professional Bodies to promote innovation around Data Science. ICDMAI is the biggest data science conference in Southeast Asia, and is committed to create a forum which brings data science enthusiasts on the same page and envisions its role towards its enhancement through collaboration, innovative methodologies and connections throughout the globe. The planning towards ICDMAI 2023 started around 14 months back and the entire core team ensured that we surpass our own bench mark.

This year was special, as we completed 7 years. They say, initial seven years are the most crucial milestones as it provides the foundation for all future learning, behavior and health. We have not just managed to survive for 7 years, but we have become richer and mightier in terms of data and Data Science capabilities. We understand that the field of Data Science is growing with new competencies and has proven to be applicable to every industry that generates data. In last 07 years we could bring 80 doyens of data science as key note speakers and another set of 70 technical experts contributed towards workshops and tutorials. Besides we could engage around 400 experts as reviewers and session chairs. Till date we have received around 2329 papers from 50 countries, out of which 488 papers have been presented and published, which is just (20.9%) of submitted paper. The published papers have been accessed by more than 2.5 lakh people all across, who have cited these papers in their own research, taking the H-Index of the conference to 20. The papers we are receiving are from eminent researchers, leading research organization, from corporate houses and defence services. ICDMAI 2023 has witnessed delegates from 10 countries, 15 Industries, 121 International and Indian Universities. The conference received papers from 412 authors that were evaluated by 192 reviewers. Total 75 papers are selected after rigorous review process for oral presentation and the Best Paper Awards were given for each Track.

We tried our best to bring a bouquet data science through various workshops, tutorials, keynote sessions, plenary talks, panel discussion and paper presentations by the experts at ICDMAI 2023. The chief guests of the function were Dr Samir V Kamat, Secretary, Department of Defence R&D and Chairman, DRDO and Admiral R Hari Kumar, Chief of Naval Staff. ICDMAI 2023 witness plethora of top level experts as Keynote speakers and Experts from all over the world. We appreciate the bonhomie and support extended by IBM and DRDO as a Technical Partners, Ekin and Wizertech as Knowledge Partners, Springer as Publication Partner as well as Defense Institute of Advanced Technology-Pune, NIELIT-Guwahati and University of Arad-Romania 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 2023 | Founder Secretary, Society for Data Science

### 1. EVENT DETAILS

<b>Event Type</b>	:	Research Consortium
<b>Description</b>	:	International Conference
<b>Event Name</b>	:	7 <sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023)
<b>Venue</b>	:	Defense Institute of Advanced Technology-Pune
<b>Date</b>	:	20-22 January 2023

### 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, **7<sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023) on 20-22 January 2023** 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 designed to bring together researchers, engineers and practitioners from various domains with a common interest towards data science.

### 3. OBJECTIVES OF ICDMAI-2023

The three-day International Conference ICDMAI 2023 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 2023:

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.
10. To give awards to the best research papers and also to confer “Life Time Achievement” award on eminent personalities from the field.

The conference ensured the tangible takeaways for each participant of ICDMAI 2023.

#### **4. CALL FOR PAPERS**

7th International Conference on Data Management, Analytics and Innovation (ICDMAI – 2023) solicited papers in the areas of data science and all the relevant disciplines to a common forum. Original, unpublished research papers highlighting specific research domains from all viewpoints were invited from delegates all over the globe. It is planned to publish the selected and presented papers in the proceedings with SPRINGER in their prestigious **Lecture Notes in Networks and Systems (LNNS) series**, which is indexed by SCOPUS, INSPEC, WTI Frankfurt eG, zbMATH, SCImago. 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

##### **Special Track: BIO-SIGNAL PROCESSING USING DEEP LEARNING**

*(Annexure A-Conference Brochure)*

## 5. CONFERENCE MANAGEMENT COMMITTEE

Conference Management Committee is the key for successful organization of any international conference and ICDMAI-2023 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-2023 was fortunate onboard some of the renowned personalities from corporate, academia and research field.

### CHIEF PATRON



**Dr. Samir V Kamat**  
Secretary, Department of  
Defence R&D and  
Chairman, DRDO

### PATRONS

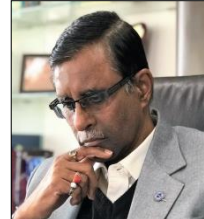


**Dr. C. P.  
Ramanarayanan**  
Vice Chancellor Defence  
Institute of Advanced  
Technology (DIAT), Pune



**Dr. Amol C. Goje**  
President, Society for Data  
Science

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International Institute of  
Information Technology,  
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**Prof. Valentina E.  
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University of Arad,  
Romania

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Director, School of Radar  
Technology, Head, EE Dept  
& Chief Public Information  
Officer (CPIO), DIAT



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



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

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**Dr. Somanchi Krishna  
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Defence Institute of  
Advanced Technology,  
Pune



**Dr. Bharath  
Ramkrishna**  
Defence Institute of  
Advanced Technology,  
Pune



**Dr. Yogeshwar Singh  
Dadwhal**  
Defence Institute of  
Advanced Technology,  
Pune



**Saptarsi Goswami**  
Bangabasi Morning  
College, University of  
Calcutta



**Col. Inderjit Singh  
Barara**  
Technology Evangelist,  
Solution Architect and a  
Mentor

**INTERNATIONAL LIAISON CHAIRS**



**Dr. Ajay K. Poddar**  
IEEE Fellow  
Chief Scientist, Synergy  
Microwave Corp.  
201 McLean Boulevard,  
Paterson, NJ 07504, USA



**Dr. Juergen Seitz**  
Head of Business  
Information Systems  
Department, Baden-  
Wuerttemberg  
Cooperative State  
University, Heidenheim,  
Germany

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Assistant General Manager  
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Wizertech Informatics Pvt.  
Ltd.

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**Dr. Sunitha Dhavale**  
Department of Computer  
Science & Engineering,  
Defence Institute of  
Advanced Technology,  
Pune



**Dr. Deepti Vidhyarthi**  
Department of Computer  
Science & Engineering,  
Defence Institute of  
Advanced Technology,  
Pune

**TUTORIAL AND WORKSHOP CHAIR**



**Dr. Manisha J Nene**  
Department of Computer  
Science & Engineering,  
Defence Institute of  
Advanced Technology,  
Pune

**TECHNICAL PROGRAM CHAIRS**



**Neha Sharma** is a data science crusader who advocates its application for achieving sustainable goals, solving societal, governmental and business problems as well as promotes the use of open data. She has more than 22 years of experience and presently working with Tata Consultancy Services and is a Founder Secretary, 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 alumna of a premier College of Engineering and Technology, Bhubaneswar and completed her PhD from prestigious Indian Institute of Technology, Dhanbad. She is a Senior IEEE member, Secretary – IEEE Pune Section and ACM Distinguished Speaker. She is an astute academician and has organized several national and international conferences and published several research papers. 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.

[linkedin.com/in/dr-neha-sharma-2127141b](https://www.linkedin.com/in/dr-neha-sharma-2127141b)

[https://speakers.acm.org/speakers/sharma\\_13085](https://speakers.acm.org/speakers/sharma_13085)





**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. Government 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>



**Alfred M. Bruckstein**, BSc, MSc in EE from the Technion - Israel Institute of Technology, Haifa, Israel, and PhD in EE, from Stanford University, Stanford, California, USA, is a Technion Ollendorff Professor of Science, in the Computer Science Department there, and is a Visiting Professor at NTU, Singapore, in the SPMS. He has done research on Neural Coding Processes, and Stochastic Point Processes, Estimation Theory, and Scattering Theory, Signal and Image Processing Topics, Computer Vision, Graphics and Robotics. Over the years he held visiting positions at Bell Laboratories, Murray Hill, NJ, USA, (1987-2001) and TsingHua University, Beijing, China, (2002-223), and made short time

visits to many universities and research centers worldwide. At the Technion, he was the Dean of the Graduate School, and is currently the Head of the Technion Excellence Program.

*(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-2023 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 **Defense Institute of Advanced Technology-Pune**. 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 it was the 7th edition of ICDMAI, and also the first physical conference after prolonged pandemic. 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 to 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-2023. The tracks were reviewed to ensure all the aspects of Data Management, Analytics and Innovation are covered and to encourage inter-disciplinary research. Besides, a special session on “Bio signal processing using deep learning” was included. A Call for Paper was released with deadline for paper submission, notification and registration. In the 7<sup>th</sup> 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 honor the Distinguished Leaders with Life Time Achievement Award.

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 were submitted.

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 2023

#### *Chief Guest – Inauguration Function*



**Dr. Samir V Kamat** has taken over as Secretary DDR&D and Chairman Defence Research and Development Organisation (DRDO) on 26th Aug 2022. Dr. Kamat completed his B. Tech (Hons) in Metallurgical Engineering from IIT Kharagpur in 1985 and PhD in Materials Science and Engineering from The Ohio State University, USA in 1988 and joined DRDO in 1989. Dr. Kamat has provided leadership and direction to several critical materials programmes in DRDO such as development of high strength steels for naval ship hulls, development of high temperature titanium alloys and nickel base superalloy based components for aeroengines, development of tungsten heavy alloys for kinetic energy penetrators, development of fused silica radomes for missile seekers, development of armour solutions for personnel as well as combat vehicles and stealth materials for airborne and naval applications. These have found use in various systems being developed by DRDO laboratories. In addition, he has spearheaded the development of naval systems such as advanced light weight torpedo, anti-torpedo decoy systems, autonomous underwater vehicles, advanced hull mounted and towed array sonars for ships and fuel cells based air independent propulsion systems for submarines. Dr. Kamat is a Fellow of the Indian National Academy of Engineering (INAE) and Institution of Engineers India (IEI). He is a recipient of Distinguished Alumni Award from IIT Kharagpur, Metallurgist of the Year Award from Ministry of Steel and Scientist of the Year Award from DRDO. He has published more than 180 papers in International peer-reviewed journals.

#### *Chief Guest – Valedictory Function*



**Admiral R Hari Kumar** PVSM, AVSM, VSM, ADC is the Chief of Naval Staff, Indian Navy. He is an alumnus of J-Squadron, 61 Course National Defence Academy. He was commissioned into the Indian Navy on 01 Jan 1983 and has specialized in Gunnery. Admiral R Hari Kumar has commanded Coast Guard Ship C-01, INS Nishank, INS Kora, INS Ranvir and INS Viraat. His other sea-going appointments include Fleet Operations Officer and Fleet Gunnery Officer of Western Fleet, EXO of INS Vipul, GO of INS Ranjit, Commissioning GO of INS Kuthar and Commissioning GO VIII of INS Ranvir. His ashore appointments include Command Gunnery Officer at HQ Western Naval Command, Naval Advisor to Government of Seychelles, Training Commander INS Dronacharya. His Flag appointments include Commandant of Naval War College at Goa, Flag Officer Sea Training, Flag Officer Commanding Western Fleet, Chief of Staff Western Naval Command, Controller Personnel Services and Chief of Personnel at IHQ MoD (N), and CISC/ VCDS at HQIDS. Prior to taking over as Chief of the Naval Staff, the Admiral was

Flag Officer Commanding-in-Chief Western Naval Command. The Flag Officer had served in the Civil Military Operations Centre of UN Mission in Somalia (UNOSOM I) at Mogadishu from Dec 1992 to Jun 1993. He attended the US Naval Staff Course at Naval War College, Rhode Island in 1996, Army Higher Command Course at AWC, Mhow in 2004, and the Royal College of Defence Studies, London in 2009. He holds a B.Sc. from JNU, MA (International Studies) from Kings College, London, MPhil (Defence & Strategic Studies) from Mumbai University and PG Diploma in Shipping Management from Narottam Morarjee Institute of Shipping, Mumbai.

He was awarded the Vishisht Seva Medal in 2010, Ati Vishisht Seva Medal in 2016 and Param Vishisht Seva Medal in 2021. Admiral R Hari Kumar is a good swimmer, plays badminton and enjoys walking. He is married to Mrs Kala Nair who is presently a home maker. They have one daughter Ms Anjana Nair who is married to Mr Jayvijay and are currently working at Auckland, New Zealand.

### ***Guest of Honor – Inauguration Function***



**Ms. Suma Varughese**, Outstanding Scientist, has assumed charge as Director General MED, CoS&CS (MCC) at DRDO with effect from 1st Jan 2022. During her illustrious career of approximately 33 years she contributed towards the development of the First Indigenous Planar Near-field Measurement Facility. This was used extensively to evaluate the phased arrays for the Akash Radar Antenna. This was followed by the successful development of the Airborne Maritime Surveillance Radar. As a Project Director for various projects, she led the team that designed and developed the first

Indigenous Airborne Active Electronically Scanned Antenna (AESAs). This was used in the AEW&C System, now being used by the Indian Airforce appreciably. Being trained in multi-disciplinary field, she notably led the team to successfully design and develop the Multisensor Data Fusion System leading towards Network centric operations of the AEW&C System. Ms. Suma Varughese was instrumental in setting up various infrastructure facilities like the Active Array Antenna Measurement facility, the Mission System Test and Integration Rig, the Antenna Assembly Rig, etc. After having successfully developed and deployed the AEW&C system as a Programme Director, she worked to obtain the sanction of the AEW&C MK-II programme with enhanced specifications for the Indian Air Force. She is recipient of various awards like the NRDC National Award, JC Bose Memorial Award of IETE, MN Saha Award of IETE, the Pathbreaking Research & Outstanding technology Development Award of DRDO, the Agni Award for Excellence in Self Reliance of DRDO Performance Excellence award of DRDO to name a few. She also has various publications in the Journals of IEEE, Wiley, IETE, DST AESI and also in various National and International conferences. She has contributed towards the patents and copy rights for some of the products she has developed for DRDO. She is the Senior Member of IEEE and Life Member of Aeronautical Society of India.

### ***Guest of Honor - Valedictory Function***



**Dr. N. R. Srinivasa Raghavan** is the founder and CEO of Tarxya Technologies Limited – a London-based Data Engineering and Artificial Intelligence Consulting firm. In the past Dr. Raghavan has worked with leading Fortune 100 companies, including General Motors, Citibank, and Reliance Industries. He is also an Honorary Professor at Manchester University, UK. For his significant contributions to the Analytics industry in India, he was acclaimed as one among the Ten Most Influential Analytics Leaders in India by Analytics India Magazine in 2014. He is also a recipient of the Young Engineer Award of the Indian National Academy of Engineering, the Young Associate Award of the Indian Academy of

Sciences, and the Young Scientist Fellowship by the Department of Science and Technology, Government of India. He has chaired many international conferences, been a keynote speaker and have also been a panelist / panel moderator in many industry events. He has more than 65 journal/conference publications and 19 classified industry reports.

### Keynote Speakers



**Dr. Harrick Vin** is the Chief Services Innovation Officer at Tata Consultancy Services (TCS). He is a TCS Fellow, a Fellow of Indian National Academy of Engineering (FNAE), and a Distinguished Alumnus of IIT Bombay. Prior to his current role, he was the Founder and CEO of Digitate, a TCS Venture. At Digitate, he led the strategy, innovation and design of ignio™, world's first cognitive automation product for enterprise IT. Prior to that, he was the Vice President and Chief Scientist of the Tata Research Development and Design Centre (TRDDC) at TCS. Prior to joining TCS, he was a Professor of Computer Sciences at the University of Texas at Austin for 15 years. At UT Austin, he was the founder of the Distributed Multimedia Computing Laboratory and the Laboratory for Advanced Systems Research. Over the past 25 years, Harrick has been involved in developing novel solutions in variety of areas in computing, including: one of the first video-over-IP desktop conferencing and collaboration system (1989); one of the first digital video-on-demand server (1991); Quality-of-Service-aware Linux kernel (1996); Internet-scale distributed caching solution (1998); web-based content syndication and personalization solution (1999); a digital media entertainment gateway for homes (2002); a programming environment for designing high-throughput systems using multi-core multi-threaded processor architectures (2005); an intelligent enterprise IT infrastructure transformation planning and migration solution (2008); a predictive analytics solution for enterprise IT (2011); and ignio™, the world's first cognitive automation product for enterprises (2015). These innovations led to three venture-backed startups in the US during 1999-2004, and now Digitate, a Tata Consultancy Services Venture. Harrick has authored more than 125 papers in leading international academic journals and conferences, as well as filed for 45 patents. Harrick received his PhD in Computer Science and Engineering from the University of California, San Diego, and B.Tech. in Computer Science and Engineering from the Indian Institute of Technology (IIT), Bombay.



**Prof. Rajesh Kumble Nayak** is currently a faculty member at The Center of Excellence in Space Sciences India and the Department of Physical Science at IISER Kolkata. His primary research area is Gravitational Wave data analysis, Relativistic Astrophysics and Blackhole Physics. After obtaining PhD from the Indian Institute of Astrophysics, He did post-doctoral work in gravitational wave data analysis at IUCAA Pune, Observatory of Nice, France and the University of Texas Brownsville. He is part of the LIGO Scientific Collaboration(LSC) and is actively involved in data analysis. He was part of the LIGO team that detected the first gravitational wave signal in 2015. Recipient of the 2016 Gruber Cosmology Prize with LSC.



**Prof. Alfred M. Bruckstein**, BSc, MSc in EE from the Technion IIT, Haifa, Israel, and PhD in EE, from Stanford University, Stanford, California, USA, is a Technion Ollendorff Professor of Science, in the Computer Science Department there, and is a Visiting Professor at NTU, Singapore, in the SPMS. He has done research on Neural Coding Processes, and Stochastic Point Processes, Estimation Theory, and Scattering Theory, Signal and Image Processing Topics, Computer Vision and

Graphics, and Robotics. Over the years he held visiting positions at Bell Laboratories, Murray Hill, NJ, USA, (1987-2001) and TsingHua University, Beijing, China, (2002-223), and made short time visits to many universities and research centers worldwide. At the Technion, he was the Dean of the Graduate School, and is currently the Head of the Technion Excellence Program.



**Dr. Satyam Priyadarshy** is Technology Fellow and Chief Data Scientist at Halliburton. He is also the Managing Director of Halliburton's India Center. He often is recognized as the first Chief Data Scientist of the oil and gas industry. Recently Forbes India named him as one of the top 10 outstanding business leaders. His work or profile has appeared in many places including Chemical and Engineering News, The Scientist, Silicon India, Oil Review Middle East, Petroleum Review, Rigzone, Forbes among others. He is an author/co-author of over 35+ research papers, numerous patents, book chapters and expert opinion articles in magazines like Science. He is the recipient of many industry accolades and he is one of the most sought out invited speakers in areas of Emerging Technologies, Quantum mechanics, Cyber security and Blockchain, Big Data, Digital Transformation among others. The Society for Petroleum Engineers named him as the 2021-2022 SPE Distinguished Lecturer. He is also a Member of the Mauritius Artificial Intelligence Council, Republic of Mauritius. He is currently associated as an adjunct/visiting faculty at a number of universities and institutes in USA and India. Dr. Priyadarshy is also on the advisory board of a number of emerging entrepreneurial companies. He earned his PhD in Quantum/Theoretical Chemistry from IIT Bombay and an MBA from Virginia Tech.



**Dr. Mayukha Pal** is currently working with Asea Brown Boveri (ABB) Company's Ability Innovation Center, Hitech City, Hyderabad as Global R&D Leader – Data Science of Digital System division developing data science strategy, and its program implementation roadmap efforts in the electrical distribution system business. He has more than 21 years of total industrial R&D work experience of which ~17 years spent in electronics product design & development for electrical distribution business of ABB and GE in different roles as global program manager and engineering functional leader. Prior to GE he had spent 3.5 years with Optiwave Photonics Ltd., Hyderabad as research engineer in design and development of Optical communication test and measurement equipment. He had obtained his Doctorate in Philosophy from C R Rao Advanced Institute of Mathematics, Statistics and Computer Science (CRRao AIMSCS), University of Hyderabad Campus, Hyderabad and his Master's degree in Electronics with specialization in Optical Fiber Communication from University of Hyderabad. He has guided more than 15 students (including Ph.D., M.Tech, B.Tech) for their industrial projects from premier research institutes of India like IIT, NIT, ISI, IISER, NIE, CUJ. Currently he is guiding 2 M.Tech, 3 B.Tech student's academic thesis and co-guiding 3 PhD students' thesis from IIT Hyderabad, IIT Kanpur, BITS-Pilani Hyderabad. He has published more than 27 peer reviewed research papers in international journals and conferences and holds 7 patents, 2 trade secrets. He is a senior IEEE member and part of many technical committees, panels, international conferences, university board of studies with strong industry-academia and start up R&D collaboration for leapfrog technology scouting, innovation. He has delivered many keynotes, guest lectures and invited talks in various forums and spearheaded securing R&D funding new technology development from govt agencies. His team has developed prescriptive analytics models, recommender systems, asset performance management solutions for ABB electrification products. His current research interest includes data science, physics aware analytics for electrical protection system's autonomous asset management and Switchgear Analytics along with cognitive neuroscience; biomedical

signal processing; financial analytics using techniques like data driven analysis, AI & ML, Deep learning, nonlinear dynamics, fluctuation Analysis, time series analysis, multifractal and correlation study, wavelet analysis, mathematical modeling of complex systems.



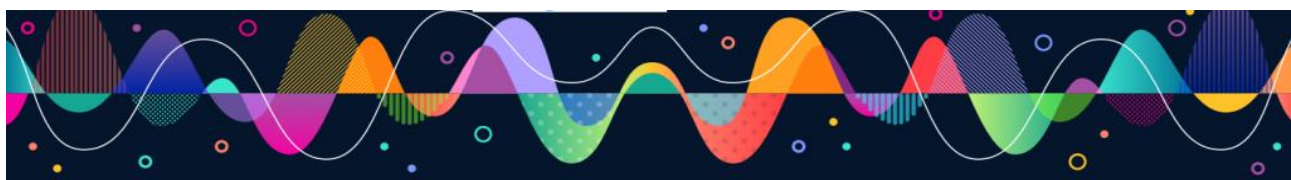
**Aninda Bose** is presently working as Executive Editor with Springer Nature. Mr. Bose is part of the Global Acquisition Team at Springer Nature and responsible for acquisition of scientific content across the globe. He is responsible for acquisition of content in Interdisciplinary Applied Sciences. 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.



**Dr. Chittaranjan Yajnik** is MD, FRCP, Director & Consultant - Diabetes Unit of KEM Hospital, Pune and is a medical scientist from Pune, India who is a specialist in Diabetes research and maternal nutrition. Yajnik is known for his work on the topic of the 'thin-fat' Indian, which explains that though not obese by international criteria Indians are adipose (high body fat percent). He has worked in the field of intrauterine programming of diabetes and was successful in showing possible role of maternal micronutrient nutrition in its aetiology.



Prof. Dr. Regiane Relva Romano has over 30 years of international experience working in technology and innovation. Regiane has over 30 years of international experience working in technology and innovation. She is Head of Research and General Coordinator of the Smart Campus at UNIFACENS - program that received the "Top Educacional 2016 - ABMES" award, and the "Innovation Award of GS1" in education category, also in 2016, "Smart City UK" in 2017, in London and in 2018 – "Best IoT Implementation Europe IdTechEx" and Top of Academy – RFIDBR 2018. She is also CEO/CIO of VIP-Systems & Informática & Consultoria. As a researcher in the business of emerging technologies, she has lectured extensively in China, Germany, Colombia, Poland, The Netherlands, Uruguay, Canada, Spain, Germany, China, Portugal, Spain, United States, and others. Is vice president of the ISCBA-Smart City Business America Institute. She developed the First Smart Store in Latin America and is widely recognized as an expert in topics related to smart, sustainable cities. She earned a Ph.D. in a concentration in Information Technology Management, at FGV and a master's degree in Informatics Management of Information Systems from PUC-CAMPINAS. She completed some studies in the improvement of international retailing at the University of Ohio, in RFID at the University of Arkansas, and in business at Columbia University.



**Tutorial / Workshop Experts**



**Dr Malay Kumar Nema**, Scientist F, CAIR, DRDO, has completed his Ph.D. from E.E. Dept. at IIT Bombay, Mumbai 1999. His research Interests are Multi-sensor Data fusion, Collaborative Signal Processing, Compressed Domain processing of images and videos, Super-Resolution Image Reconstruction, Multi-Resolution Image Processing, Medical Image Processing, Image Compression, Progressive image and video formats, Applied Machine learning, Deep learning, Explainable AI, Game Theory, Bayesian Networks, Data Mining, OODA, Asymmetric Operations



**Dr. Sangeeta Maini**, CEO, I-HUB Quantum Technology Foundation is leading the Quantum Hub under DST's National Mission on Interdisciplinary Cyber-Physical systems (NM-ICPS) - a key personnel in crafting & implementing the quantum mission. With more than 15 years of professional experience in both industrial & academic settings, Dr. Maini is able to mobilize projects & policies both at national and global platforms. Dr. Maini's current engagements revolve around development of quantum technologies and products, supporting startups ecosystem in quantum technologies and related areas, skilling the nation in quantum technologies and bridging industry and academia. Prior to joining the I-HUB QTF at IISER, Pune Dr. Maini served Anna University and worked with the state innovation and entrepreneurship agencies and contributed towards building an entrepreneurship ecosystem at the university encompassing 600 engineering and technological colleges under the university and the university innovation consortium. She has encouraged, supported and handheld many startups in the field of science & engineering across industry. Several companies have benefited from developing business proposals, securing grants & funds with highest level of mentorship for developing the roadmap for product launch and sustained business. Academically, Dr. Maini is a Physicist with a Ph.D. in Medical Physics from University College London (UCL), United Kingdom with publications in the field of cryptography, quantum computation and imaging.



**Amit Saxena** is Joint Director at HPC-M&BA group and Program Director for Quantum Computer Development mission of C-DAC. With more than a decade of experience he has played an important role in many strategic and collaborative projects under Govt. of India. He is playing a major role as the Expert Member in implementation of the National Supercomputing Mission (NSM) project. He is working for development of HPC based Quantum Accelerator for implementation and testing of Quantum Algorithms. He has organized various training and workshops under the C-DAC flagship. He is also playing a key role under the National Mission on Quantum Technologies & Applications (NMQTA) as a C-DAC representative. He is an experienced Software Developer with a demonstrated history of working in the Grid Computing and Cloud Computing working on quantum application development in the area of Bioinformatics.

Google scholar link: <https://scholar.google.com/citations?hl=en&authuser=1&user=bz6B6bQAAAAJ>

**Sunitha Manjari Kasibhatla** is working with High Performance Computing-Medical and Bioinformatics Applications Group of Centre for Development of Advanced Computing (C-DAC), Pune, India as 'Associate Director'. She has played active role in development of tools that exploit high performance compute clusters like GenoVault, Anvaya, GAMUT and GenoPipe. Her research interests include population-genomics and comparative genomics. She has been part of three Indo-UK collaborative projects pertaining to



comparative genomics of Salmonella serovars, SNP analysis of Maerek's disease resistant and susceptible chicken lines and transposon sequence analysis of Mycobacterium bovis. She has 30 publications in peer-reviewed journals and was awarded BioClues Innovation in Research and Development award-2012 instituted by BioClues.org. She has Master's in Biochemistry with an Advanced Diploma in Bioinformatics and is concurrently pursuing PhD in Bioinformatics under the guidance of Dr. Urmila Kulkarni-Kale (Bioinformatics Centre, S.P. Pune University) and Dr. Mohan Kale (Department of Statistics, S.P. Pune University) since November 2014 and is working on 'Understanding the evolutionary dynamics of viruses using comparative genomics approaches'.

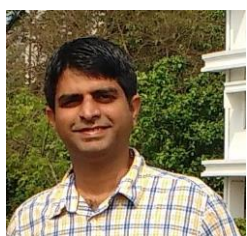


Google Scholar link: <https://scholar.google.co.in/citations?user=dbshPZwAAAAJ&hl=en>



**Ruma Banerjee** is working with the High Performance Computing: Medical and Bioinformatics Group in the capacity of Joint Director. She has around 16 years of experience in the area of Bioinformatics and is currently the Project Director for Exascale System Application Development for Genome Sequence analysis in Bioinformatics. She is currently heading the PetaScale Genomics team application activities on Mycobacterium genomics and the 1000 Genome data project. Her area of interest lies in understanding the biology of Mycobacterium tuberculosis Complex using different "bioinformatics approaches" and has been driving collaborations with national and international universities. She has played an active role in development of tools and workflows that exploit the high performance computing clusters and has contributed significantly for various in house R&D projects which involve population genomics approaches for understanding genetic diversity and biomarker identification of Mycobacterium samples. She has more than 10 journal publications in international peer reviewed journals. She has in-depth knowledge and expertise in understanding the biology of organisms using Bioinformatics techniques and High Performance Computing and has been instrumental in providing several workshops/training for the life sciences community.

Orcid id link: <https://orcid.org/my-orcid?orcid=0000-0001-7890-8666>



**Vinod Jani** is working with the High Performance Computing: Medical and Bioinformatics Group in the capacity of Joint Director. He has around 13 years of experience in the area of molecular modeling and simulations of biomolecules and is currently the Project Director for Molecular Modelling and Drug Design. He completed his Master in Bioinformatics from Pune university in 2008. His area of interest lies in the deeper understanding of the protein folding pathway and designing simulations to address the computational challenges confronted while doing so. Enhancement in traditionally used algorithms has been one of the key areas of his research. Using enhanced molecular dynamics simulations he has tried to solve complex biological problems, involving larger biomolecules. He has played active role in development of high performance computing based tools pertaining to conformation search of small molecules, biomolecular visualization and analysis of large trajectories. He has contributed in research activities related to understanding of amyloid aggregation, understanding mechanism of ayurvedic molecules against various diseases. He has been part of several national and international collaborative projects. He has more than 20 publications in the peer-reviewed journals.



**Vivek Gavane**, is a Joint Director in the HPC - Medical & Bioinformatics Applications Group, C-DAC, Pune. He received his B.E degree in Computer Science and Engineering from Pune University and M. Tech degree in IT (AI) from RGPV, Bhopal. He has more than 16 years of experience in the field of parallel and distributed computing. His expertise includes design and development of parallel applications using MPI and OpenMP. He is involved in Administration and Management of supercomputing clusters at Bioinformatics Resources and Applications Facility (BRAAF), and in development of various parallel HPC applications at C-DAC Pune. His other field of interests includes Artificial Neural Networks and Deep Learning.



**Dr. CRS Kumar** is currently Professor in the Computer Science and Engineering Department, Defence Institute of Advanced Technology(DIAT), DRDO, Ministry of Defence. He has received PhD, M.Tech., MBA and B.E. degrees from reputed Universities/ Institutes. His areas of interest are in Cyber Security, Virtual Reality/Augmented Reality, Fault Tolerant Computing, Game Theory, Wireless Networking. He is a Fellow of IETE, Fellow of Institution of Engineers, Senior Member of IEEE, Chartered Engineer(Institution of Engineers) and Distinguished Visitor Program(DVP) Speaker of IEEE Computer Society, Lean Six Sigma Green Belt. Dr. Kumar brings with him rich industry, research and academic experience. Dr. Kumar has worked in leading MNCs such as Philips, Infineon, L&T Infotech in senior positions.. He is currently supervising 6 Master's students. He is recipient of several awards including "Best Individual for Creating Cyber Security Awareness" at CSI-IT2020 Annual Technology Conference 2017, held at IIT Mumbai and "Microsoft Innovative Educator Expert (MIEExpert) Project Showcase Award" at Microsoft Edu Days.



**Amol Dhondse** is a Chief Architect and STSM, IBM Master Inventor. He is an IBM Certified senior IT Architect, Open Group Master Certified Architect and TOGAF Certified. He has over 21 years of experience in the IT Industry and 10 years in Architecture profession. Amol is a Master Inventor and has filed 40 patents, 10 granted and 6 published in areas such as AI, Cognitive, Cloud, APIfication and IoT. Amol brings with him strong technical understanding of Social, Portal, Content Management, Mobile Solutions, Enterprise, Application, Middleware, Big Data, Systems/ Infrastructure and Design & Architecture. He has domain expertise in Manufacturing, Energy Utilities and Telco Industry. Amol is active among multiple IBM technical communities as a technical evangelist and thought leader and is leading multiple initiatives within the IBM Academy of Technology & its affiliates. Amol is IBM Recognized Speaker and prolific speaker has presented white papers in Regional Technical exchanges, external forums and invited in various universities to conduct workshops on AI, ML, IoT and Digital transformation.



**Mrityunjoy Panday** is an AI Architect with Cognizant Technology Solutions in India. He has over 8 years of experience as a Solution Architect and AI/ML, with a total of 17 years of cross-industry experience. His research interests include program synthesis, and he has published multiple research papers in machine learning. He has also been awarded a patent with the USPTO for automated exploratory data analysis. He specializes in designing custom algorithms for automating using AI/ML, and has experience in building systems for time series AutoML, observational causality.

## 8. VENUE OF ICDMAI 2023

ICDMAI 2023 was hosted at **Defence Institute of Advanced Technology (DIAT)**, which 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. Ministry of Human Resource Development, Government of India has placed DIAT in Category 'A' Deemed University & accredited by National Assessment and Accreditation Council and National Board of Accreditation. During the last few years, researchers in DIAT have filed more than 50 patent applications with Indian Patent Office and published more than 2000 papers in various journals of International repute.



## 9. PARTNERS FOR ICDMAI 2023



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



**Defence Research and Development Organisation (DRDO)** is the R&D wing of Ministry of Defence, Govt of India, with a vision to empower India with cutting-edge defence technologies and a mission to achieve self-reliance in critical defence technologies and systems, while equipping our armed forces with state-of-the-art weapon systems and equipment in accordance with requirements laid down by the three Services. DRDO's pursuit of self-reliance and successful indigenous development and production of strategic systems and platforms such as Agni and Prithvi series of missiles; light combat aircraft, Tejas; multi-barrel rocket launcher, Pinaka; air defence system, Akash; a wide range of radars and electronic warfare systems; etc., have given quantum jump to India's military might, generating effective deterrence and providing crucial leverage.



**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)** came into being as the Institute of Armament Studies in 1952 in the CME campus. In 1967, the Institute was renamed as "Institute of Armament Technology, (IAT)", which moved to its present location at Girinagar, Pune. From the relatively narrow scope of Armament Studies alone in the Fifties, the role of the Institute was considerably enlarged by the Defence R&D Council in 1964 and further in 1981. On the basis of accreditation by the All India Council of Technical Education (AICTE), Pune University recognised eight courses for the award of ME degree in 1980. In the year 2000, the Institute acquired the status of a Deemed to be University. IAT has been renamed as DIAT w.e.f. 1st April 2006.



**"Aurel Vlaicu" University of Arad** is a distinct academic community that operates in accord with the provisions of the Romanian Constitution as well as with the laws pertaining to higher education. AVU promotes and upholds all European conventions regarding higher education. The university employs a highly trained teaching staff and offers the best possible amenities for didactic and scientific related activities. At the moment the university hosts 9 faculties with 9 departments and 11 research centers, 3 institutes and 1 business incubator across 47.903 m<sup>2</sup> of didactic spaces, state of the art computer labs, conference and lecture halls etc. The faculties` curriculum plans are correlated with the European Credit Transfer and Accumulation System (ECTS) so that diplomas issued within the EU as well as study periods abroad can be recognized. The Erasmus programme offers students the opportunity to attend classes within a different university, either foreign or domestic. All ERASMUS students are guaranteed complete academic recognition for their studies abroad.



Esonic is driven by Team of passionate members who have invested 15+ years in developing other brands and then decided to launch its own brand named “Ekin”. Ekin is sanskrit word which means “Simplicity”. Our approach is to make technology simple so that it can reach to mass and used with ease. Brand Ekin has focus on SMART class, Virtual Class, Video conference and Thin Client solution. We have 30+ product in these category with experience center at 3 Locations 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.



10. ITINERARY

ICDMAI 2023 7 <sup>th</sup> International Conference on Data Management, Analytics & Innovation								
Venue: Defence Institute of Advanced Technology, Pune								
Date/Time	Min(s)	Pre Conference Workshop / Tutorial   Venue: C.V. Raman Auditorium						
FRIDAY 20-January-2023	09:00 - 10:00	60	Registration and Networking					
	10:00-11:15	75	<b>Dr Malay Nema</b> , Sc F, CAIR DRDO, BANGALORE Topic: <b>AI for DEFENCE</b>					
	11:15-11:30	15	Tea Break					
	11:30-13:30	120	<b>Sunitha Manjari</b> , Associate Director, HPC-M&BA group, C-DAC Pune - Bioinformatics overview and role of HPC <b>Ruma Banerjee</b> , Joint Director, HPC-M&BA group, C-DAC Pune - Comparative Genomics using HPC <b>Vinod Jani</b> , Joint Director, HPC-M&BA group, C-DAC Pune - HPC driven molecular simulations for Drug discovery <b>Amit Saxena</b> , Joint Director, HPC-M&BA group, C-DAC Pune - Big Data in Bioinformatics <b>Vivek Gavane</b> , Joint Director, HPC-M&BA group, C-DAC Pune - HPC for Lifesciences using BIRAF facility Topic: <b>HPC in Bioinformatics: Advanced Bioinformatics Techniques for Genomics and Molecular Data Analysis</b>					
	13:30 - 14:30	60	Lunch Break					
	14:30 - 15:30	60	<b>Mrityunjoy Panday</b> , AI Architect, Cognizant Technology Solutions Topic - <b>Exploring the Impact of GPT-3 on Natural Language Processing: Advancements, Challenges and Opportunities</b>					
	15:30 - 16:30	60	<b>Dr. Sangeeta Maini KM</b> , Chief Executive Officer, I Hub QIT Topic: <b>Translating Quantum Research into Technologies</b>					
	16:30 - 17:30	60	<b>Prof C.R. Suthikshn Kumar</b> , Defence Institute of Advanced Technology Topic: <b>Knime Analytics Platform for Data Scientists</b>					
	17:30-18:00	30	Tea Break					
	17:00 - 17:15	15	Session Snapshot					
ICDMAI 2023 - Day 1   Venue: C.V. Raman Auditorium								
SATURDAY 21-January-2023	09:00 - 09:45	45	Registration & Networking					
	09:45 - 11:15	75	INAUGURATION FUNCTION -					
			Session Moderator - <b>Dr. Inderjit Barara</b>					
	11:15 - 11:45	30	Keynote Address 1: <b>Dr. Harrick Vin</b> - Chief Services Innovation Officer, Tata Consultancy Services Topic: <b>Future of Enterprises</b>					
	11:45 - 12:00	15	Session Snapshot   Networking   Tea Break					
			Venue	Prithvi	Pinaka	Sagarika	Arjun	Kaveri
	12:00 - 13:15	75	Session 1	Track 1 A MACHINE LEARNING	Track 1 B MACHINE LEARNING	Track 2 A AI & DEEP LEARNING	Track 3 DATA STORAGE, MANAGEMENT AND INNOVATION	Track 4 A ENABLING TECHNOLOGIES AND APPLICATIONS
	13:15 - 14:15	60	Session Snapshot   Networking   Lunch					
			Session Moderator - <b>Dr. Yogeshwar Singh Dadwhal</b>					
	14:15 - 14:30	15	Partner Session: <b>Minal Bhagat</b> , Director, Ensonic Computech Private Limited, Kolkata					
	14:30 - 15:00	30	Keynote Address 1: <b>Dr. Satyam Priyadarshy</b> - Chief Data Scientist at Halliburton (NYSE: HAL)-USA Topic: <b>Accelerating Data Science Driven Transformation: Challenges, Opportunities, Reach, Evolution</b>					
	15:00 - 15:30	30	Keynote Address 2: <b>Chetna Gala Sinha</b> , Founder & Chairperson - Mann Deshi Bank Topic: <b>Importance of Data Science in Social Sector</b>					
	15:30 - 16:15	45	Panel Discussion: <b>How to scale up AI for organizations?</b> Moderator - <b>Dr. Inderjit Barara</b> , Society for Data Science Panelist: <b>Dr. Satyam Priyadarshy</b> - Chief Data Scientist at Halliburton (NYSE: HAL)-USA <b>Mrityunjoy Panday</b> , AI Architect, Cognizant Technology Solutions <b>Dr Malay Nema</b> , Sc F, CAIR DRDO, BANGALORE					
16:15 - 16:30	15	Session Snapshot   Networking   Tea Break						
		Venue	Prithvi	Pinaka	Sagarika	Arjun	Kaveri	
16:30 - 17:45	75	Session 2	Track 1 C MACHINE LEARNING	Track 2 B AI & DEEP LEARNING	Track 2 C AI & DEEP LEARNING	Track 3 DATA STORAGE, MANAGEMENT AND INNOVATION & Track 5 DATA SCIENCE TECHNIQUES FOR HANDLING EPIDEMIC, PANDEMIC	Track 4 B ENABLING TECHNOLOGIES AND APPLICATIONS	Special Session
18:15 - 20:30		Cultural Programme & Gala Dinner						

## 7<sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023)

ICDMAI 2023 - Day 2   Venue: C.V. Raman Auditorium								
SUNDAY 22-January-2023	09:00 - 09:30	30	Registration & Networking					
	<b>Session Moderator - Dr. Sunita Dhavale</b>							
	Plenary Sessions: <b>Prof. Dr. Regiane Relva Romano</b> - Head of Research and General Coordinator at Smart Campus FACENS, Brazil Topic: <b>Big Data Applications in Power Systems</b>							
	<b>Alfred M. Bruckstein</b> , Technion - Israel Institute of Technology, Faculty of Computer Science, Israel Topic: <b>Agent Interaction Design for Robot Swarms</b>							
	09:30 - 10:00	30	Plenary Session by Publication Partner: <b>Aninda Bose</b> - Executive Editor, Springer India Pvt. Ltd., UK Topic: <b>Publishing Ethics and Author Services</b>					
	10:00 - 10:30	30	Keynote Address 1: <b>Rajesh Kumble Nayak</b> - <i>IISER- Kolkata</i> Topic: <b>Data Analysis in Gravitational Wave Astronomy</b>					
	10:30 - 11:00	30	Keynote Address 2: <b>Mayukha Pal</b> - <i>Global R&amp;D Leader - Data Science, ABB Ability Innovation Center, Hyderabad</i> Topic: <b>Attention is all that you need</b>					
	11:00 - 11:30	30	Keynote Address 3: <b>Dr. Chittaranjan Yaynik</b> , <i>MD, FRCP, Director &amp; Consultant - Diabetes Unit</i> <b>Transgenerational transmission of Diabetes: Mere Paas Data Hai</b>					Topic:
	11:30 - 11:45	15	Session Snapshot   Networking   Tea Break					
			<b>Venue</b>	<b>Prithvi</b>	<b>Pinaka</b>	<b>Sagarika</b>	<b>Arjun</b>	<b>Kaveri</b>
	11:15 - 12:30	75	<b>Session 3</b>	<b>Track 1 D MACHINE LEARNING</b>	<b>Track 2 D AI &amp; DEEP LEARNING</b>	<b>Track 2 E AI &amp; DEEP LEARNING</b>	Special Session	<b>Track 1 E MACHINE LEARNING</b>
	13:00 - 14:00	60	Session Snapshot   Networking   Lunch Break					
	<b>Valedictory Session   Venue: C.V. Raman Auditorium</b>							
	14:00 - 14:30	30	Valedictory Keynote Address by the Guest of Honor: <b>N.R. Srinivasa Raghavan</b> - <i>CEO of Tatyra Technologies Limited, London</i> Topic: <b>My experiments with Data Science</b>					
14:40 - 14:50	10	Valedictory Talk by the Chief Guest: <b>Admiral R Hari Kumar PYSM, AVSM, VSM, ADC</b> Chief of the Naval Staff, Indian Navy						
14:50 - 15:10	30	<b>Awards Distribution Ceremony</b>						
15:15-15:20	5	Closing Remarks by <b>Prof. C. P. Ramnarayanan</b> , Vice Chancellor, DIAT, Pune						
15:25 - 15:30	5	Vote of Thanks						



## 11. EXECUTIVE SUMMARY

### Day 01: 20 January 2023

#### Pre-Conference Workshops / Tutorials

A 03-Days conference “ICDMAI 2023” commenced on 20 January 2023 with a warm welcome to the expert speakers and participants on a wintry morning at C.V. Raman auditorium, DIAT, Pune. 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 registration of speakers, audiences, students and other delegates from all over the country and abroad, started at the scheduled time (09:00 a.m.). Post registration there was a tea arrangement for a short introductory networking session for the delegates.



Participants Registering for ICDMAI 2023

The tutorials started at 10:00 a.m. and lasted until 5:30 p.m. There were two tea breaks and a break for lunch in between. Dr. Manisha Nene, Workshop and Tutorial Chair welcomed the expert speakers and participants for the pre-conference sessions. She shared the efforts taken to meticulously create the bouquet of tutorials and workshop aligned to the theme of the conference. Three different technical tutorials and two workshops were offered as part of the pre-conference events and it benefitted the participants tremendously.





### **Tutorial 1: AI for DEFENCE (10:00 AM – 11:15 AM)**

AI in defence can change combat and conflict at the deepest levels. Drones and AI can be combined to monitor border areas, identify risks, and communicate threat information to the relevant reaction teams. Thus, the use of AI improves military personnel's security during combat. **Dr Malay Nema** conducted a tutorial that was designed to orient the expectations of designers, developers, users of defence ICT systems. The endeavour of the talk was to capture the path of technical evolution, highlight the aspects related to the complexity of operations as perceived by information systems and challenges for AI to be part of it.



Dr Malay Nema Sc F, CAIR DRDO, Bangalore, conducting a Tutorial on 20 January 2023 at ICDMAI 2023

### **Workshop 2: HPC in Bioinformatics: Advanced Bioinformatics Techniques for Genomics and Molecular Data Analysis (11:30 AM – 13:30 PM)**

There have been an increasing number of applications to solve complex real-world problems using HPC systems. Solving such complex problems has many alternatives to choose from application programs, algorithms & underlying HPC technologies. The role of high-performance computing (HPC) in bioinformatics is to enable the analysis and processing of large amounts of biological data, such as DNA sequences, protein structures, and gene expression levels. Bioinformatics involves the use of computational algorithms and tools to analyze and interpret biological data, and HPC techniques, such as parallel computing or distributed computing, are often used to speed up these processes. The Bioinformatics Resources & Applications Facility (BRAAF) at C-DAC, provides high-end supercomputing facilities to the researchers working in the areas of Bioinformatics. The facility gives access to HPC resources, such as computing time and data storage, to researchers and scientists. The Bioinformatics Group at C-DAC is poised to serve as a provider to the computing applications and infrastructure on demand to the Bioinformatics community.

The workshop conducted by the C-DAC team gave a decisive edge to the students, scientific users and researchers to choose the HPC technology for bioinformatics related codes. **Sunitha Manjari** presented on the topic “Bioinformatics overview and role of HPC”, **Ruma Banerjee** talked about “Comparative Genomics using HPC”, **Vinod Jani** spoke about “HPC driven molecular simulations for Drug discovery”, **Amit Saxena** delivered on “Big Data in Bioinformatics” and **Vivek Gavane** deliberated on “Life sciences using BRAF facility”.



Sunitha Manjari, Associate Director; Ruma Banerjee, Joint Director; Vinod Jani, Joint Director; Amit Saxena, Joint Director; Vivek Gavane, Joint Director, HPC-M&BA group, C-DAC Pune conducting a Workshop on 20 January 2023 at ICDMAI 2023

**Tutorial 3: Exploring the Impact of GPT-3 on Natural Language Processing: Advancements, Challenges and Opportunities (14:30 PM – 15:30 PM)**

Artificial intelligence (AI) has been making significant strides in recent years, and one of the most notable advancements is the development of GPT-3. Short for "Generative Pre-trained Transformer 3," GPT-3 is a language processing AI model created by OpenAI, a leading research organization in the field of AI. This model has the ability to understand, analyze, and generate human-like text with an unprecedented level of accuracy. **Mrityunjay Panday** conducted a tutorial to explore the capabilities of GPT-3 and how it is impacting various industries across globe. He said that AI tools like ChatGPT will soon be capable of answering a large fraction of traditional university homework type questions with reasonable accuracy. In the long term, it seems futile to fight against this; perhaps lecturers need to move to an "open books, open AI" mode of examination where the students get the full access to AI tools, but ask them more challenging questions, both to teach the material and also to teach the students how best to use the AI tools of the future.



Mrityunjay Panday, AI Architect, Cognizant Technology Solutions conducting a Tutorial on 20 January 2023 at ICDMAI 2023

**Tutorial 4: Translating Quantum Research into Technologies (15:30 – 16:30)**

The second quantum revolution is all about how to utilize the potential of quantum physics – building quantum technologies and products that are of societal use. Several governments are investing humongous amounts of funds in national projects in quantum technologies and product development. India is taking baby steps in exploring its quantum technologies development capabilities. Be it Quantum Computing, Quantum Sensing, Quantum Communication or Materials for Quantum Technologies – which is going to lead the future? and can Quantum Computers really replace the current computers? **Dr. Sangeeta Maini** conducted a tutorial where she presenting I-HUB Quantum Technology Foundation, a Technology Innovation Hub and a Section 8 not-for-profit company, promoted by IISER-Pune dedicated to development of Quantum Technologies for our nation.



Dr. Sangeeta Maini KM, Chief Executive Officer, I Hub QTF conducting a Tutorial on 20 January 2023 at ICDMAI 2023

**Workshop 5: Knime Analytics Platform for Data Scientists (16:30 PM – 17:30 PM)**

Prof C.R. Suthikshn Kumar conducted a workshop on Knime Analytics Platform for Data Scientists. The Knime Analytics Platform is an open source easy to program data analytics platform with support for Machine Learning. The powerful GUI of Knime provides the data scientists an innovative approach to analyse the data and derive insights. The tutorial introduced the participants to Knime platform and takes them through some of the applications. The real life data sets were utilized to illustrate the powerful features and functionalities of Knime. The tutorial provided hands on opportunity to learn Knime for Data Cleaning, Data Visualization and Machine Learning.



Prof C. R. Suthikshn Kumar, DIAT conducting a workshop on 20 January 2023 at ICDMAI 2023



Random Clicks of Experts, Speakers, Participants, Volunteers on 20 January at ICDMAI 2023

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



**Day 02: 21 January 2023**

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

The C. V. Raman auditorium of the Defence Institute of Advanced Technology, Pune was properly decked up and other preparations were diligently completed for the Inauguration ceremony.



Completely Decked up C. V. Raman Auditorium for the Inauguration Ceremony on 21 January 2023 at ICDMAI 2023

All the Guests, delegates and participants started arriving since 8.30 am at the Auditorium, for the inauguration function. They registered themselves and had the breakfast.



Guests, Delegates and Participants registering themselves on 21 January 2023 at ICDMAI 2023

## 7<sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023)

Chief Guests (Dr Samir V Kamat, Secretary, Department of Defence R&D and Chairman, DRDO) and Guest of Honor (Ms Suma Varughese, Outstanding Scientist & Director General - Micro Electronic Devices, Computational Systems & Cyber Systems (MED & CoS)), along with Vice Chancellor-DIAT (Dr. C. P. Ramanarayanan) arrived at 9:45 AM at the inauguration function.



Chief Guest and Guest of Honor arriving at the Inauguration Ceremony on 21 January 2023 at ICDMAI 2023

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

TIME	Min(s)	DETAILS
09:00 am – 09:45 am	45	Registration and Networking
09:45 am – 09:50 am	05	Saraswati Vandana
09:50 am - 09:55 am	05	Welcome Address by <b>Dr. Amol Goje</b> , President, Society for Data Science
09:55 am – 10:00 am	05	Introduction of ICDMAI 2023 by <b>Dr. Neha Sharma</b> , Steering Committee Chairs, ICDMAI 2023
10:00 am – 10:05 am	05	Felicitation of Guests
10:05 am – 10:07 am	02	Release of Abstract Book
10:07 am – 10:12 am	05	Address by General Chair, <b>Dr. P.K. Sinha</b> , Vice Chancellor and Director-IIIT-Naya Raipur
10:12 am – 10:17 am	05	Address by <b>C. P. Ramanarayanan</b> , Vice Chancellor-DIAT, Pune, Patron – ICDMAI 2023
10:17 am – 10:27 am	10	Address by the Guest of Honor- <b>Ms Suma Varughese</b> , Outstanding Scientist & Director General - Micro Electronic Devices, Computational Systems & Cyber Systems (MED & CoS)
10:27 am – 10:30 am	03	Introduction of the Chief Guest – Dr. K. P. Ray, Steering Committee Chairs, ICDMAI 2023
10:30 am – 10: 50am	20	<b>Dr Samir V Kamat</b> , Secretary, Department of Defence R&D and Chairman, DRDO

## 7<sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023)

TIME	Min(s)	DETAILS
10:50 am –10:55 am	05	Citation of Prof. <b>S.C. Mehrotra</b> - Dr. Amol Goje
10:55 am –11:00 am	05	Felicitation of Prof. <b>S.C. Mehrotra</b>
10:55 am –11:05 am	05	Vote of Thanks by Dr. Murthy, Organizing Chair, ICDMAI 2023
11:05 am –11:07 am	2	National Anthem
11:07 am – 11:15 am	13	Group Photograph

The anchors of the inauguration ceremony, briefed the guests and the delegates about the event and the host Institute. They shared with the audience that the Society for Data Science has been organizing this conference since 2017 and this year it's even more special as it is being hosted in the premier institute of our country, India. They expressed deep gratitude to the galaxy of professionals and experts from different domains who have come here from all across the globe.



Dignitaries on the Dais at the Inauguration Function of ICDMAI 2023

The inauguration ceremony started with Ganesha Saraswati Vandana to provide wisdom and to remove all the obstacles in the success of this celebration of knowledge. The prayer invokes the Goddess who represents purity, truth, knowledge, and creativity, and has always been equated with positivity, motivation, harbinger of good and associated with spiritual beings.



Ganesh Saraswati Vandana to commence the Inauguration Function of ICDMAI 2023

At the outset, Patron - ICDMAI-2023 and President – Society for Data Science, Dr. Amol Goje, welcomed all the participants and conveyed his heartfelt thanks to all the experts, speakers, participants, volunteers for their whole-hearted support. He further added that in these 07 years, our efforts were towards laying a strong foundation for 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 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. He appealed all the participants to join hands with Society for Data Science for research and knowledge dissemination.



Opening Remarks by the Patron –Dr. Amol Goje at ICDMAI 2023

Then, the Steering Committee Chair – ICDMAI 2023 and Founder Secretary-S4DS, Dr Neha Sharma shared that in last 7 years, ICDMAI could successfully leave the mark in the world of data science, and has hosted 80 doyens of data science as key note speakers and another set of 70 technical experts contributed towards workshops and tutorials. ICDMAI has witnessed many Padmashri awardee, Vice Chancellors, Directors, CEOs, MDs, VPs, on its platform. Besides, around 400 experts were engaged as reviewers and session chairs. Till date, we have received around 2329 papers from 50 countries, out of which 488 papers have been presented and published, which is just (20.9%) of submitted paper. The published papers have been accessed by more than 2.5 lakh people all across, who have cited these papers in their own research, taking the H-Index of the conference to 20. She conveyed her heartfelt thanks to DRDO and DIAT for their association and support and to Partners - IBM, Ekin, IISER-Kolkata, NIELIT Guwahati, University of Arad, Romania and Springer, for their rock solid support. At the end, she promised to present the bouquet of interesting knowledge nuggets in this ICDMAI 2023.



Introduction of ICDMAI 2023 –Dr. Neha Sharma



Moving ahead, the Chief Guest (Dr Samir V Kamat) and Guest of Honor (Ms Suma Varughese) were felicitated and the Abstract Book of ICDMAI 2023 was released. Following that, General Chair, Dr. P.K. Sinha, Vice Chancellor and Director-IIIT-Naya Raipur; Patron – ICDMAI 2023, Dr. C. P. Ramanarayanan, Vice Chancellor-DIAT, Pune, and Guest of Honor- Ms Suma Varughese, Outstanding Scientist & Director General - Micro Electronic Devices, Computational Systems & Cyber Systems (MED & CoS), addressed the audience.



Launch of Abstract Book on 21 January 2023 at ICDMAI 2023



Address by Dr. P. K. Sinha (VC-IIIT-NayaRaipur), Dr. C. P. Ramanarayanan (VC-DIAT) and Ms Suma Varughese at ICDMAI 2023

**Dr. P. K. Sinha**, Vice Chancellor & Director of International Institute of Information Technology (IIIT), Naya Raipur and General Chair - ICDMAI 2023, welcomed all the guests and delegates. Sir shared that ICDMAI made a humble beginning in 2016 in India has become truly international in just few years. The past versions of this conference saw eminent scientists, engineers and academicians delivering keynote speeches and invited talks, thus providing enriching experience for the participants. Further, sir said that with increasing use of data analysis for decision making in all spheres of our modern society, today Data Science has become

main stream in all domains, be it science, engineering, finance, marketing or any other area. Most of today's business and research decisions as well as disruptive innovations are data-driven. In next few decades, several disruptive technologies based on data-driven innovations are going to impact our social ecosystem. Hence, the conference is very topical.

**Dr. C. P. Ramanarayanan**, Vice Chancellor-DIAT, Pune and Patron – ICDMAI 2023, greeted all the participants. He said the technologies driven by Data Science, Machine Learning, Artificial Intelligence and Big Data have transformed not only the industries but also life of every citizen. These technologies have spread into every sector ranging from agriculture, defence, healthcare, auto mobile etc. The solutions and the product created or built using these technologies play a vital role in life in the 21<sup>st</sup> century. In addition to transforming every sector, these technologies have been creating new avenues in the job sector. As Data Science, AI, ML, Deep Learning are in a very nascent stage, it is very much important to grow along with the advancements in this technology domain and to create solutions to national and global challenges. He further said that it is very much heartening to see the tremendous response received by the conference from the research community and many distinguished experts from the field have agreed to deliver keynote /invited talks. Dr. Ramanarayanan assured that each participant is going to walk away with new ideas, new collaborations, and previous connections reaffirmed.

**Ms Suma Varughese**, Outstanding Scientist & Director General - Micro Electronic Devices, Computational Systems & Cyber Systems (MED & CoS) and Guest of Honor-ICDMAI 2023 shared that Analytics/ Data Science industry in India is at a phase where IT was some 10-15 years ago and thus a boom can be expected in analytics outsourcing to India. Hence, Data Science has a great scope in India. Like any large economy, there are enough industries where data science is going to disrupt, or at least create a differentiator for the first mover businesses. Because of the size of India (volume) and the diversity of market (variety), the opportunities are much more than say a smaller emerging economy. She said that ICDMAI acts as a platform to grow and empower the nation with data science skills and research.

Moving forwards, it was the time to listen to the keynote by the chief guest, **Dr Samir V Kamat**, Secretary, Department of Defence R&D and Chairman, Defence Research and Development Organization. He said over the last few years, millions of technologies have revolutionized and empowered the nations worldwide in creating and enhancing businesses, services, intelligence, networking, security, and productivity. These leading technologies are internet of things, internet governance, social media, cloud computing, networking techniques, web technologies, data analytics, resource optimization techniques, mobile computing, information and communication technologies, artificial intelligence, green computing and many more. The convergence of these technologies has gained momentum in enabling performance optimization in all spheres of life and has already transformed how enterprises work today to improve their operations and increase profits. Data Science and Analytics has turned out to be one of the foundations and basic requirement for all branches of Science and Engineering with the use of tools like Machine Learning, Data Learning, Artificial Intelligence, and Data Mining. This particular domain will become an inescapable knowledge fountain for all researchers, academicians, corporate, and even for the common man to be aware of and use it for meaningful decision-making. He further added that an International Conference of this kind will bring together the community working in this discipline and provide exposure to the latest trends. At the end, he wished the very best to the organizers of the International Conference for a grand success of the event.

The talk of the Chief Guest was very informative and well appreciated by the participants.



Address by the Chief Guest, Dr Samir V Kamat, Secretary, Department of Defence R&D and Chairman, DRDO at ICDMAI 2023

Finally, **Prof. S.C. Mehrotra** was bestowed the **Life Time Achievement award for 2023** at the hands of the Chief Guest, Dr. Sameer Kamat.



Life Time Achievement award for 2023 presented to Prof. S.C. Mehrotra at ICDMAI 2023



Life Time Achievement awardee for 2023, Prof. S.C. Mehrotra, Addressing the Delegates at ICDMAI 2023

At the end, Dr. Murthy, Organizing Chair, ICDMAI thanked everybody who supported us to organize a conference of this magnitude. Dr. Murthy appealed to all the guests, partners and delegates for their continued support in future to help us create a strong data science ecosystem.



Chief Guest, Keynote Speakers, Guests, Partners and Delegates at Inauguration Ceremony of ICDMAI 2023 on 21 January 2023

Inauguration ceremony was followed by the **Session-01**, which had 01 Keynote Talk, 01 Partner Talk and 25 Paper Presentations. This session was moderated by **Dr. Inderjit Barara**, Executive Member, S4DS, who introduced both the Keynote Speaker. The first keynote was by **Dr. Harrick Vin** from Tata Consultancy Services was scheduled immediately after the inauguration programme. Dr. Vin delivered his talk on the topic "**Future of Enterprises**". He said that we live in interesting times where Information technology has become an integral element of all work; rapid advances in technology is leading to continuous redefinition of the why, what and how of all work and businesses. This presents significant challenges as well as opportunities for everyone, enterprises and individuals alike. In his presentation, he discussed imperatives for enterprises and individuals to stay relevant and thrive in this rapidly changing world.



Keynote Talk by Dr. Harrick Vin, Chief Services Innovation Officer, TCS on 21 January 2023, ICDMAI 2023

Next session was a Partner Talk by **Minal Bhagat**, who is a sales professional with over a decade and a half of experience in various industries, specializing in driving exponential growth and business development, particularly in the areas of franchise and distribution expansion. Currently, a seasoned startup entrepreneur who co-founded Ensonic Computech Pvt. Ltd. Ensonic is driven by Team of passionate members who have invested 15+ years in developing other brands and then decided to launch its own brand named "Ekin". Ekin is sanskrit word which means "Simplicity". Their approach is to make technology simple so that it can reach to mass and used with ease. Brand Ekin has focus on SMART class, Virtual Class, Video conference and Thin Client solution. They have 30+ product in these category with experience center at 3 Locations in India.



Partner Talk by Minal Bhagat, Co-Founder, Ekin on 21 January 2023, ICDMAI 2023

Partner Talk was followed by the Paper Presentation Session 01, where 25 papers were presented in 05 parallel tracks of 75 mins each. The delegates dispersed to their respective Tracks for the paper presentation.

**Session-02** commenced post lunch and had 01 interesting Keynote Talks, 01 Panel Discussion and 30 Paper Presentations. The session was moderated by **Dr. Yogeshwar Singh Dadwhal** from DIAT. The first keynote speaker was **Dr. Satyam Priyadarshy**, Chief Data Scientist at Halliburton – USA, who delivered a talk on the Topic **“Accelerating Data Science Driven Transformation: Challenges, Opportunities, Reach, Evolution”**. He shared that a decade of activity in the field of data science at high pace has resulted in significant value creation for some businesses. On the flip side, various statistics show that data science projects are not successful. In his talk, he discussed various aspects of data science with some case studies from simple industries to highly complex industries. The talk was centered on CORE values like Challenges, Opportunities, Reach and Evolution for transformation in today's era of Industry 4.0 and beyond. The talk was highly informative and forced the participants to re-think Data and AI.



Keynote Talk by Dr. Satyam Priyadarshy, Chief Data Scientist at Halliburton – USA on 21 January 2023, ICDMAI 2023

After a power packed keynote talk, there was a Panel Discussion on **“How to scale up AI for organizations?”**, moderated by **Dr. Inderjit Barara**, Executive Member, S4DS and the esteemed panelist were **Dr. Satyam Priyadarshy**, Chief Data Scientist at Halliburton (NYSE: HAL)-USA, **Mrityunjay Pandey**, AI Architect, Cognizant Technology Solutions and **Dr Malay Nema**, Sc F, CAIR DRDO, Bangalore. Scaling up Artificial Intelligence (AI) for organizations requires careful planning, strategic thinking, and a dedicated team of experts. Here are some steps suggested by the panelist that organizations can take to scale up their AI capabilities and leverage the power of AI to drive business growth and innovation:

**Define the problem:** Organizations should clearly define the business problem they want to solve with AI. This involves identifying the data sources, understanding the stakeholders, and defining the metrics for success.

**Build a team:** Organizations should assemble a team of experts with diverse skills and expertise. This team should include data scientists, engineers, product managers, and business analysts who can work together to build and deploy AI solutions.

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**Identify the data:** AI models require large amounts of data to learn and make predictions. Organizations should identify the relevant data sources and ensure that the data is clean, accurate, and well-structured.

**Choose the right technology:** Organizations should choose the right AI technology for their specific use case. This may involve using open source frameworks, cloud-based platforms, or customized solutions.

**Develop the AI model:** Once the team has defined the problem, identified the data, and selected the technology, they can begin building the AI model. This involves designing the architecture, selecting the algorithms, and training the model on the data.

**Deploy the AI model:** Once the AI model is built, it needs to be deployed in a production environment. This involves integrating the model into the existing systems, testing it thoroughly, and monitoring its performance.

**Iterate and improve:** AI models are not static, they need to be constantly monitored and updated. Organizations should establish a process for iterating and improving the model based on feedback from stakeholders and new data.

**Develop AI culture:** Organizations should develop an AI culture by educating employees on the benefits of AI and promoting a data-driven decision-making approach. This can help build trust and enthusiasm for AI across the organization.



Panel Discussion on “How to scale up AI for organizations?” on 21 January 2023, ICDMAI 2023

Partner Discussion was followed by the Paper Presentation Session 02, where 30 papers were presented in 05 parallel tracks and a Special track of 75 mins each. The delegates dispersed to their respective Tracks.



Delegates on 21 January 2023, ICDMAI 2023

After a full action packed day, there was a **cultural evening** organized for the delegates, as we understand the without Arts, the STEM (Science, Technology, Engineering and Mathematics) education is incomplete. Since the venue of ICDMAI 2023 was in Maharashtra, we decided to showcase the popular folk performance (Lavani) of the region. Lavani (Marathi: लावणी) is a genre of music popular in Maharashtra, India. Lavani is a combination of traditional song and dance, which particularly performed to the beats of Dholki, a percussion instrument. Lavani is noted for its powerful rhythm. Lavani has contributed substantially to the development of Marathi folk theatre. In Maharashtra and southern Madhya Pradesh it is performed by the female performers wearing nine-yard long sarees. The songs are sung in a quick tempo. ICDMAI organizing team is grateful to Ms. Sanjivani Joglekar for coordinating the entire cultural evening and to the artists who not only showcased the culture of Maharashtra but also made the delegates to participate and experience the same.



Cultural Evening on 21 January 2023, ICDMAI 2023



Glimpse Of Gala Dinner on 21 January 2023, ICDMAI 2023



**Day 03: 22 January 2023**

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

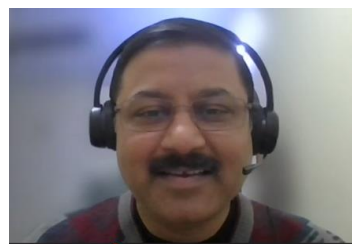
Day 03 began with the arrival of the guests, delegates and participants at the conference venue since 9.00 AM for registration and breakfast. At 9:30 AM, everybody gathered at the auditorium to start the **03 Session** of the conference, which had 02 Plenary talks, 04 Keynote talks and 20 Paper Presentations. This session was chaired by **Dr. Sunita Dhavale**, DAIT, who introduced all the Plenary and Keynote Speakers.

First Plenary session was by **Prof. Dr. Regiane Relva Romano**, Head of Research and General Coordinator at Smart Campus FACENS, Brazil on **“ESG, IoT, AI, 5G applied in Smart City: a practical case in Brazil”**. She shared that 5G Smart Campus Facens is a living lab program related to concept of Smart and Sustainable Cities created by University FACENS to support companies, startups, academics, and public sector to innovate. The program is support by 9 axes: ICT; Urbanization, Education and Culture; Energy; Mobility and Security; Health and Quality of Life; Industry and Business; Environment and Governance Area. Using the university campus as a place to prototype, test, analyse and replicate solutions for Smart and Sustainable Cities to convert real problems into applicable solutions in an urban context, providing an innovative multidisciplinary learning experience, supported by innovative thinking with commitment with the environment, social responsibility and governance. Since 2016 more than 350 projects have been done, and many of them are related to environment: all integrated to a Central Dashboard, using AI, 5G, and IoT technology.



Plenary Talk by Prof. Dr. Regiane Relva Romano, FACENS, Brazil on 22 January 2023, ICDMAI 2023

Next Plenary talk was by **Aninda Bose**, Executive Editor, Springer Nature on very important topic for every researcher, i.e. **“Publishing Ethics and Author Services”**. Aninda explained that the importance of research publishing with 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



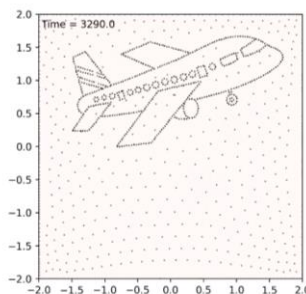
publishers is to handle ethical issues and it is of utmost importance for the authors to understand the ethical practices involved in the process. Aninda, in his talk provided information on different ethical practices and also on how to make use of various author services for the publishing work.



Plenary Talk by Aninda Bose, Executive Editor, Springer Nature on 22 January 2023, ICDMAI 2023

First keynote talk was by **Prof. Alfred M. Bruckstein**, Technion - Israel Institute of Technology, Israel on the topic “**Agent Interaction Design for Robot Swarms**”. Agent Interaction Design (AID) for Robot Swarms involves designing the ways in which robots in a swarm interact with each other to achieve a common goal. The aim is to create efficient and effective interactions that enable the swarm to achieve its goals while ensuring the safety and robustness of the system. The talk by Prof. Alfred surveyed a series of results in Multi-Agent Swarm Robotics, concerning the design of local interactions that ensure the emergence of desired global behaviors. The talk was very interesting and appreciated by the delegates.

DISTRIBUTED & DECENTRALIZED  
SPATIAL TASK ALLOCATION  
Alfred M. BRUCKSTEIN  
Technion, IIT, Haifa  
- ISRAEL -  
(joint work with H. Amir, Y. Bloch, Y. Kofman, A. Baral)



Keynote Talk by Prof. Alfred Bruckstein, Technion - Israel Institute of Technology, Israel on 22 January 2023, ICDMAI 2023

Second Keynote talk was **Prof. Rajesh Kumble Nayak**, IISER- Kolkata on the topic “**Data Analysis in Gravitational Wave Astronomy**”. Prof. Nayak talked about the importance of data analysis in gravitational wave astronomy. Einstein first predicted the existence of gravitational waves in the year 1916. Since the effects are so small, it took nearly 100 years to show the presence of these waves directly. The LIGO detectors first directly detected gravitational wave signals from astrophysical sources such as binary black holes. Data analysis and modeling are one of the main ingredients of gravitational astronomy. In his talk, he discussed several standard analysis tools, such as match filtering and how newer schemes can improve speed and efficiency.



Keynote Address by Prof. Rajesh Kumble Nayak, IISER- Kolkata on 22 January 2023, ICDMAI 2023

Third Keynote talk was by **Dr. Mayukha Pal**, Global R&D Leader - Data Science, ABB Ability Innovation Center, Hyderabad on the topic **“Attention is all that you need”**. Attention is ability to direct our consciousness and awareness to the object or topic under study or play. Attention to nature with science and engineering brings breakthrough innovation and technological advancement for the betterment of mankind. Attention to engineering problems with data science and physical parameters brings product or solution having features not practiced or unique creating differentiating value. Attention in deep learning and computer vision extracts information from the whole sequence, a weighted sum of all the past encoder states allowing the decoder to assign greater weight to certain elements of the input for each element of the output. The attention mechanism draws global dependencies between input and output bringing higher prediction accuracy. Dr. Pal discussed various aspects of the attention-based mechanism from physics aware analytics to transformer models with supremacy of its performance, unique results.



Keynote Address by Dr. Mayukha Pal, ABB Ability Innovation Center, Hyderabad on 22 January 2023, ICDMAI 2023

Final Keynote talk was by **Dr. Chittaranjan Yajnik**, MD, FRCP, Director & Consultant - Diabetes Unit, KEM on the topic **“Trans-generational transmission of Diabetes: Mere Paas Data Hai”**. Dr. Yajnik shared that diabetes and other chronic non-communicable diseases are usually portrayed to have genetic susceptibility and precipitation by unhealthy lifestyle. Genetic susceptibility is not modifiable at present, so the prevention is focused on lifestyle modification. Recent research has revealed a modifiable susceptibility factor of intrauterine epigenetic programming which is largely driven by environmental factors like maternal nutrition, metabolism, hormones, stress and pollutants. This has led to the concept of intrauterine programming of health and disease (Developmental Origins of Health and Disease - DOHaD). India has the double burden of malnutrition (under-nutrition in early life and a rapidly rising epidemic of diabetes, obesity and cardiovascular disease). India has been at the forefront of DOHaD research since its description by Prof David Barker in the UK and has contributed vital information from many birth cohorts and mechanistic and interventional studies. Role of maternal under-nutrition and maternal diabetes have been extensively investigated. Pune

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Maternal Nutrition Study, Pune Children's Study and Diabetes in Pregnancy studies at KEM Hospital, Pune are some of the flagship studies from India. In the Pune studies Dr. Yajnik and team have 3 generational longitudinal data on body size, nutrition, metabolism, cardio-metabolic risk factors and imaging data. A 3-generation blood bank is available for further measurements of various biomarkers.



Keynote Address by Dr. Chittaranjan Yajnik, KEM on 22 January 2023, ICDMAI 2023

Moving forward, after all the keynote talks and plenary sessions, the delegates dispersed for the paper presentation session 03 in five different tracks. Each track was of 75 mins. and total 20 papers were presented.

Finally, it was the time for **Valedictory Session**. Chief Guests (Admiral R Hari Kumar PVSM, AVSM, VSM, ADC, Chief of the Naval Staff, Indian Navy) and Guest of Honor (Dr.N.R. Srinivasa Raghavan, CEO, Tarxya Technologies Limited, London), along with Vice Chancellor-DIAT (Dr. C. P. Ramanarayanan) arrived at 02:00 PM at the C.V. Raman Auditorium.



Chief Guest and Guest of Honor arriving at C. V. Raman Auditorium on 22 January 2023, ICDMAI 2023

**Dr. Neha Sharma** from Society for Data Science hosted the final lap of 7th International Conference on Data Management, Analytics and Innovation (ICDMAI 2023). Anything that begins has to come to an end. She gave the complete re-cap of the entire transaction of 3 days.



## 7<sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023)

The session started with a valedictory keynote address by the Guest of Honor, **Dr. N.R. Srinivasa Raghavan**, CEO of Tarxya Technologies Limited, London on the topic **“My experiments with Data Science”**. Dr. Raghavan presented several industrial case studies where he was personally involved in formulating, designing, developing and deploying solutions to challenging real world problems. The talk highlighted both the 'hard' and 'soft' aspects of implementing AI/Data Science/Data engineering driven solutions. Specifically, the applications of techniques from Statistics, Machine Learning, AI, Data Science and Data Engineering were highlighted. Best practices in build cycles were also discussed. Cutting edge research directions were also highlighted towards the end of the session.



Valedictory Keynote Address by N.R. Srinivasa Raghavan, Tarxya Technologies Limited, London on 22 January 2023, ICDMAI 2023

**Dr. K. P. Ray**, Steering Committee Chair shared the key takeaways from the three days International Conference (ICDMAI 2023). He also introduced the Chief Guest to the participants and requested Dr. C. P. Ramanarayanan, VC, DIAT to felicitate the Chief Guest, Admiral R Hari Kumar, Indian Navy.



Introduction and Felicitation of the Chief Guest during Valedictory Function on 22 January 2023, ICDMAI 2023



Memento being presented to the Chief Guest during Valedictory Function on 22 January 2023, ICDMAI 2023

The Chief Guest, **Admiral R Hari Kumar** PVSM, AVSM, VSM, ADC, Chief of the Naval Staff, Indian Navy, addressed the delegates. Admiral Hari said that data science plays a crucial role in the Indian defence sector in several ways. Some of the important aspects are as follows:

1. **Threat Detection and Intelligence Gathering:** Data science can be used to detect potential threats and provide intelligence on enemy movements. This information is critical to the defence forces for making strategic decisions and taking appropriate actions.
2. **Military Logistics:** Data science can help optimize military logistics by predicting demand and supply requirements, improving inventory management, and reducing wastage of resources. This can help the Indian defence forces to be better prepared and operate more efficiently.
3. **Cybersecurity:** With the increasing dependence on digital technologies, data science can be used to protect sensitive data and prevent cyber attacks on the defence systems. It can help identify potential vulnerabilities and provide insights to enhance cybersecurity measures.
4. **Predictive Maintenance:** Data science can also be used to monitor and maintain defence equipment, predicting maintenance requirements and identifying potential issues before they become a problem. This can help prevent downtime and ensure that the equipment is always ready for use.
5. **Predictive Analysis:** Data science can be used to analyze past events and predict future trends. This can be especially useful for the defence forces to anticipate potential threats and prepare accordingly.

Overall, data science can help the Indian defence forces to be better prepared, more efficient, and effective in their operations. It is an essential tool in the modern-day defence landscape, and its importance will continue to grow in the years to come. At the end, he said data science is becoming increasingly important

## 7<sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023)

for India as it can provide numerous benefits to various sectors in the country and congratulated the entire team for organizing the conference on this important area.

Next, was the announcement of the **Life Time Achievement award for 2023**. The legend to receive the award at the hands of Admiral R Hari Kumar, Chief of the Naval Staff, Indian Navy, was **Prof. G. S. Mani**.





S4DS Life Time Achievement Awards to Prof. G.S. Mani on 22 January 2023, ICDMAI 2023



Life Time Achievement awardee for 2023, Prof. G.S. Mani, Addressing the Delegates at ICDMAI 2023

**S4DS Life Time Achievement Award 2023**

NAME	Photograph
<p><b>Dr.Suresh C. Mehrotra</b>, Ph.D.(Austin), F.N.A.Sc., AvH Fellow(Germany) Professor (retired), Former UGC-BSR Fellow Former Ramanujan Chair Professor, Department of Computer Science &amp; IT, Dr. Babasaheb Ambedkar Marathwada University</p>	
<p><b>Prof. G. S. Mani</b>, Chair, Core Committee, EMWOC-2022 Chair, Joint Chapter of AP-s, MTT-S, EMC, IEEE Pune Section Former Chair, IEEE Pune Section Former Dean &amp; Director, DIAT, DRDO, Pune</p>	

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. Amol Goje, President of Society for Data Science announced the names of the awardees and the award was given at the hands of Admiral R Hari Kumar, Chief of the Naval Staff, Indian Navy. The details of the same are as follows:

Name	Paper Title	Position	Track
Dr. Krantee M. Jamdaade and Dr. Harshali Patil	Prakruti Nishchitikanan of Human Body using Supervised Machine Learning Approach	First	Machine Learning
Shripad Bhatlawande, Swati Shilaskar, Advait Kamathe, Chinmay Kulkarni and Neelam Chandolikar	A Smart System to Classify Walking and Sitting Activity based on EEG Signal	First	Machine Learning
Ralf Höchenberger, Detlev Hummel and Juergen Seitz	Do women shy away from cryptocurrency investment? Cross-country evidence from survey data	Second	Machine Learning
Harikumar Radhakrishnan, Shyam Sundar, Bharath R and C P Ramanarayanan	Suspicious Event Detection of Cargo Vessels based on AIS Data	Second	Machine Learning
Harikumar Radhakrishnan, Saikat Bank, Bharath R and C P Ramanarayanan	Statistics Driven Suspicious Event Detection of Fishing Vessels based on AIS Data	Third	Machine Learning
Arvind Kumar, Bhargab Das, Raj Kumar and Virendra Kumar	Comparative Study of Depth Estimation for 2-D Scene Using Deep Learning Model	First	AI & DEEP Learning
Nilanjan Sinhababu, Monalisa Sarma and Debasis Samanta	Improving Autoencoder based Recommendation Systems	First	AI & DEEP Learning
Sonam Sharma, Sumukh Sirmokadam and Pavan Chittimalli	Explainable Automated Coding of Medical Narratives using Identification of Hierarchical Labels	Second	AI & DEEP Learning



## 7<sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023)

Manish Sinha	Real-time learning towards assets allocation	Third	AI & DEEP Learning
Sita Yadav and Dr. Sandeep Chaware	Video object detection with an improved classification approach	Third	AI & DEEP Learning
Ketaki Pattani and Sunil Gautam	Defense and evaluation against covert channel based attacks in Android smartphones	First	Data Storage, Management and Innovation
Shital Dinde and Suresh Shirgave	Secure Authentication of IoT devices using upgradable Smart Contract and Fog-Blockchain Technology	First	Enabling Technologies & Applications
Arsheyee Shahapure, Anindita Banerjee Banerjee and Rehan Deshmukh	Studying effect of comorbidity on the survival rates of COVID-19 virus using Quantum Machine Learning	Second	Enabling Technologies & Applications
Pramod Kanjalkar, Prasad Chinchole, Archit Chitre, Jyoti Kanjalkar and Prakash Sharma	Economical Solution to Automatic Evaluation of an OMR Sheet Using Image Processing	First	Data Science Techniques for Handling Pandemic
S.M. Shifana Rayesha, Dr. Aisha Banu and S. Sharon Priya	Protein structure prediction using Neural Network	First	Bio-Signal Processing using Deep Learning



**Winners of Track-wise Paper Presentation being Awarded at the hands of CNS during Valedictory Function of ICDMAI 2023**

**Dr. C. P. Ramanarayanan**, Vice Chancellor-DIAT and Patron-ICDMAI 2023 delivered the closing remarks. He congratulated the Chief Guests, Guest of Honors, Keynote speakers, Technical Experts, Delegates, conference Committee members, Reviewers for their participation. He appreciated the contribution of each and every member and rigor to put this three days event together.



Closing Remarks by Dr. C. P. Ramanarayanan, Vice Chancellor-DIAT and Patron-ICDMAI 2023 on 22 January 2023, ICDMAI 2023

Finally, **Dr. Bharat Ramakrishna**, DIAT, delivered a **Vote of Thanks**. Dr. Bharat 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. Dr. Bharat, also thanked all the partners and guests for their gracious presence and profuse support.



Vote of Thanks by Dr. Bharat Ramakrishna, DIAT on 22 January 2023, ICDMAI 2023

## 7<sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023)

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 2023, the efforts, innovation, intelligent execution presented by all the delegates were exemplary and an achievement in itself. At the end, Delegates collected the certificates and submitted their feedback. ICDMAI 2023 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 22 January 2023 at ICDMAI 2023

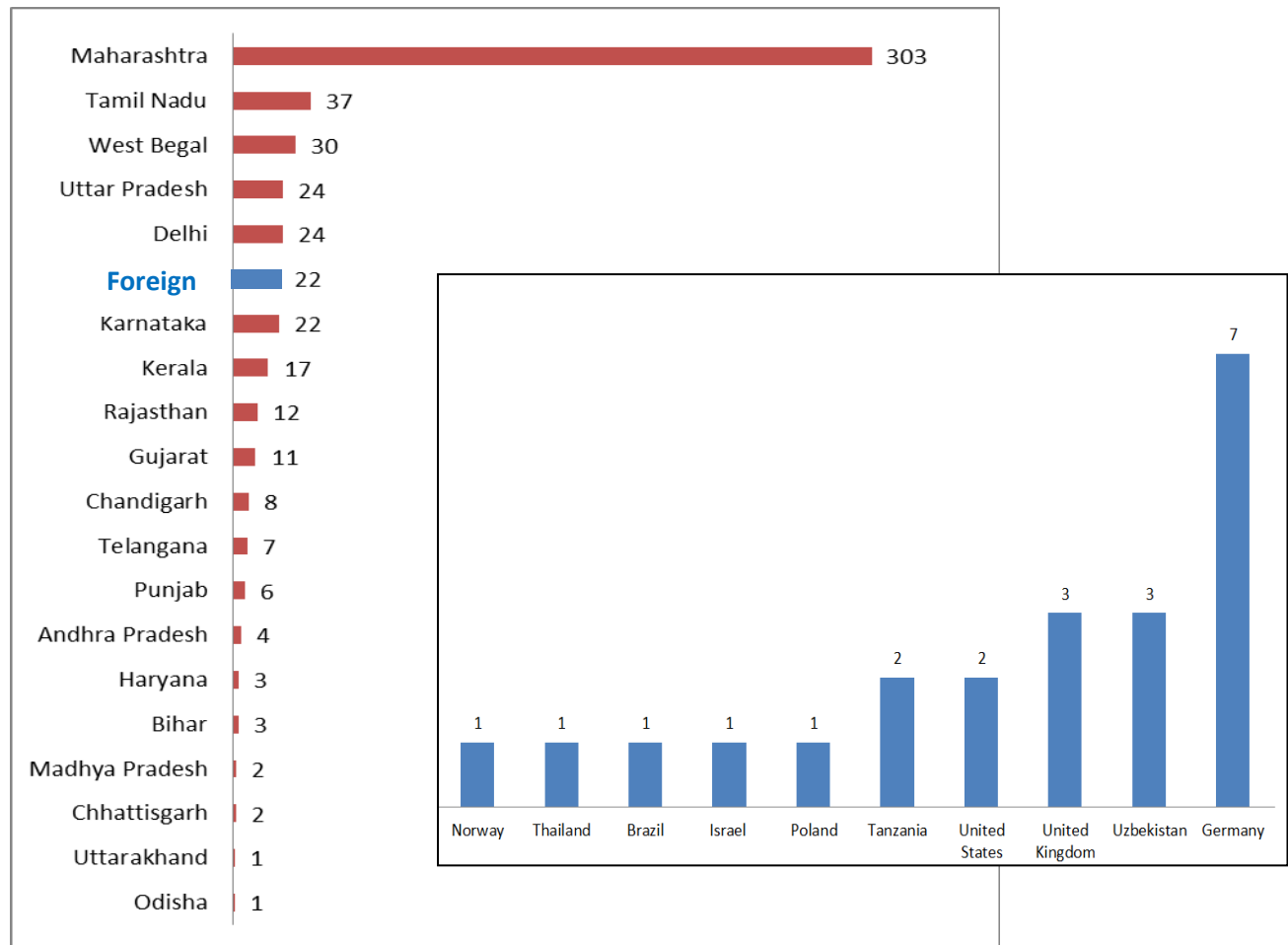


Glimpses of Volunteers at ICDMAI 2023

## 12. ICDMAI-2023 PAPER SUBMISSION METRICS

### 12-A. Response to the Conference

**Call for Paper** was announced and information was uploaded on the conference website on 15<sup>th</sup> March 2022. The conference started receiving papers from all the states of our country as well as from international community. Total **153 research papers** were submitted to ICDMAI 2023 by around **468 authors / researchers** from industry and academia. 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 of Participation at ICDMAI 2023

### 12-B. Review Process

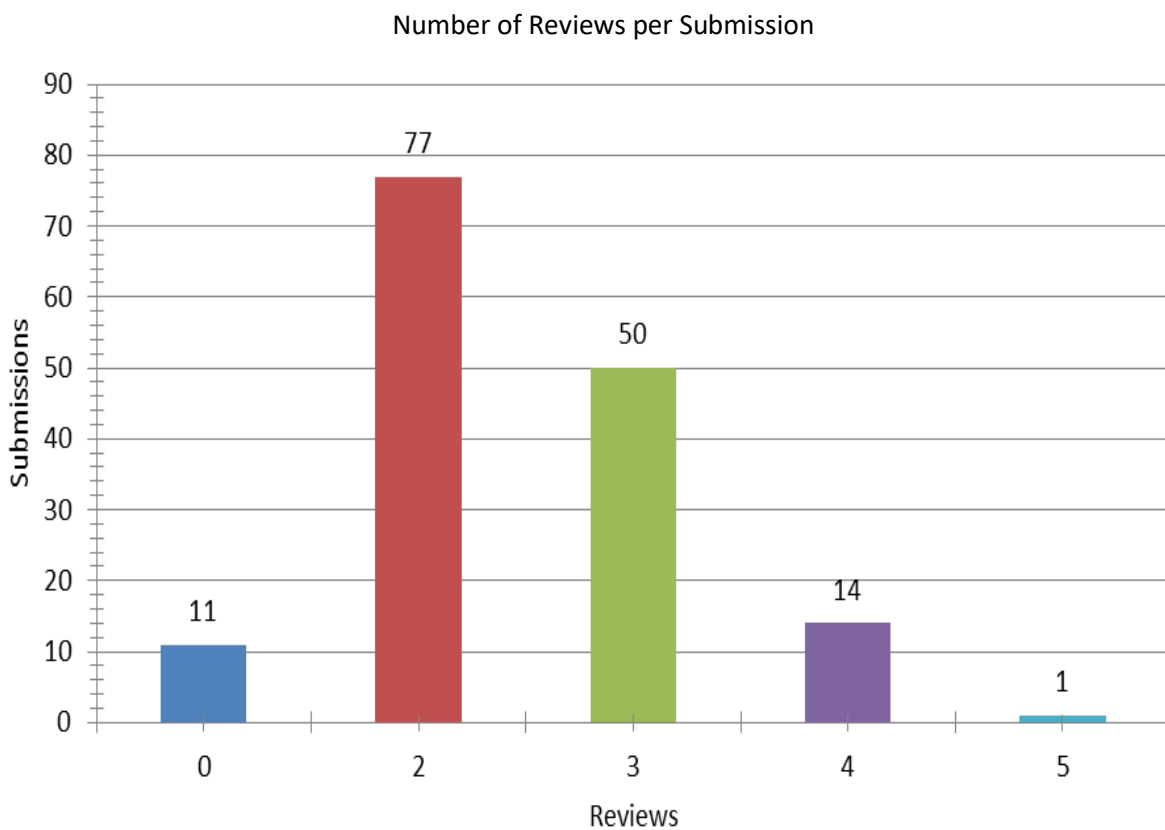
- 1) Solicited papers in five tracks through Call for paper
- 2) Conducted plagiarism check for the submitted paper in respective track using Turnitin Software.
- 3) Depending on the result, took appropriate action from the following options: -
  - a. If Plagiarism > 50%, then Rejected the submission 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.

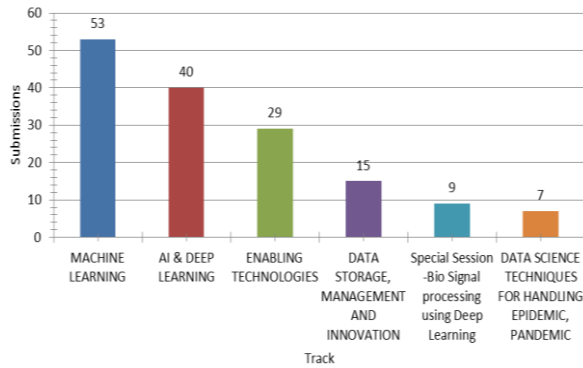
**12-C. ICDMAI 2023 Metrics**

153 Research papers have been submitted for ICDMAI 2023 and out of them only 72 papers are selected for oral presentation. The details of the paper selection and registration statistics are given below:-

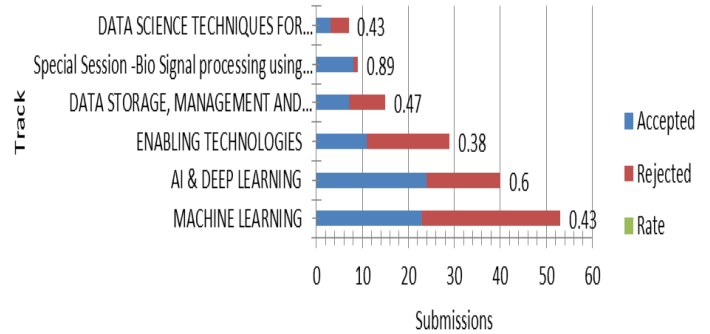
Particulars	Information
Total paper received	153
<b>Paper selected after double blind review</b>	<b>75</b>
Number of Contributors (Authors + Listener + Session Chairs + Track Chairs + Speakers + Volunteers)	538
<b>Total Delegates registered for ICDMAI 2022</b>	<b>99</b>
Total papers presented at the conference	72
Absenteeism	03
Total attendance at ICDMAI 2022	170
Number of Indian States from where papers were received	19



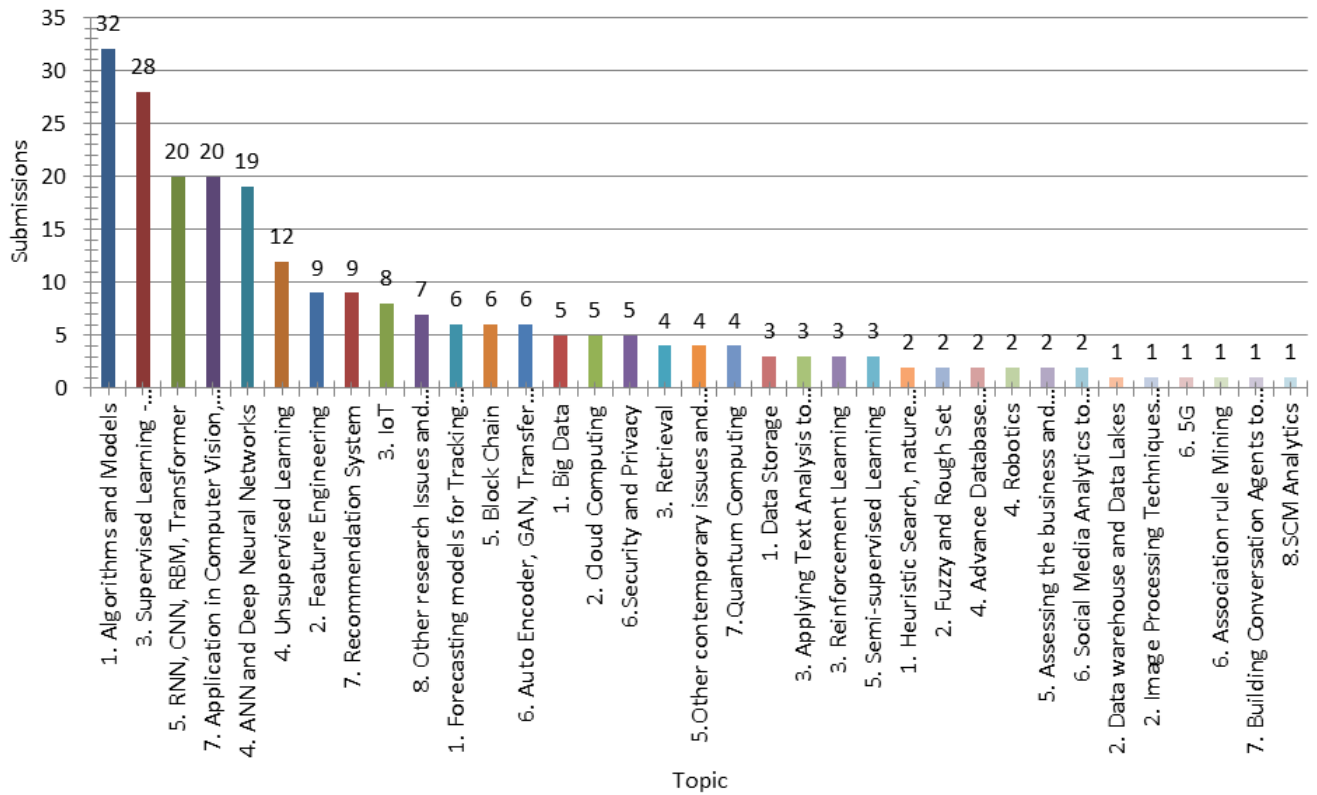
Number of Submissions by Track



Number of Submissions and Acceptance Rate by Track



Number of Submissions by Topic



**Participation in ICDMAI 2023**

**Research Organizations**

CSIR-Central Scientific Instruments Organisation
Defence Institute of Advanced Technology(DIAT),Pune
Defence Institute of Psychological Research(DIPR),Delhi
District Sericulture Department
Defence Research and Development Organization
Centre for Development of Advanced Computing
PCOMBINATOR
Institute of Advanced Research, Gandhinagar, Gujarat
National Institute of Epidemiology, Chennai, India

**Industries**

Interchange Systems Pvt Ltd
Tata Consultancy Services Limited
Allianz Kunde und Markt GmbH, Germany
Indian Navy
Reliance Jio Platforms Ltd
Unikul Solutions Pvt. Limited
Datafly.ai
SIEMENS Technology and Services Private Limited
Cognizant Technology Solutions India Pvt Ltd
National Crime Records Bureau, Ministry- Home Affairs
Superintendent of Police, Cyber Crime at Uttar Pradesh
NVIDIA

**Countries**

Norway
Thailand
Brazil
Israel
Tanzania
United States
United Kingdom
Uzbekistan
Germany
Poland

**Academia**

Michigan State University, United States
Baden-Wuerttemberg Cooperative State University Heidenheim, Germany
Bournemouth University, United Kingdom
Asian Institute of Technology, Thailand
Institute of Economics and Finance, University Opole, Poland
The University of Dodoma, Tanzania
University of Oslo, Norway
University of Koblenz and Landau, Landau, Germany
Samarkand State University, Samarkand, 140100, Uzbekistan
Indian Institute of Information Technology, Kottayam, Kerala
Indian Institute of Information Technology, Indore
Indian Institute of Technology Kharagpur, India
Banaras Hindu University, Varanasi
National Institute of Technology Karnataka(NITK), Surathkal, India
National Institute of Technology Calicut
National Institute of Technology Patna
Government College of Engineering and Leather Technology
Government College of Engineering and Ceramic Technology
College of Engineering, Trivandrum
College of Engineering, Pune
Government College of Engineering and Research, Avasari Khurd
Walchand Institute of Technology
Sree Chitra Tirunal Institute for Medical Sciences and Technology
Zakir Husain College of Engineering &Technology, Aligarh Muslim University
Savitribai Phule Pune University
Jawaharlal Nehru University
Jadavpur University
SRM TRP Engineering College
Cummins college of engineering
Amrita Vishwa Vidyapeetham, Coimbatore
NMIMS University, Mumbai
Vellore Institute of Technology, Vellore
Manipal University Jaipur
BITS Pilani
FLAME University
SASTRA Deemed to be University

**12-D. Summary of Paper Presentation Session**

Paper presentations were carried out in three sessions, and each session was further divided into Six parallel tracks of 75 mins each. Details of 06 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 Special Track: Bio-Signal Processing using Deep Learning

Session 01 and Session 02 were conducted on 21 January 2023, whereas Session 03 was conducted on 22 January 2023. Total 72 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.

ICDMAI 2023		7th INTERNATIONAL CONFERENCE ON DATA MANAGEMENT, ANALYTICS AND INNOVATION (20-22 January 2023)						SD SOCIETY FOR DATA SCIENCE
Venue: Defence Institute of Advanced Technology, Pune								
ICDMAI 2023 - Day 2   Venue: C.V. Raman Auditorium								
12:15 - 13:30	75	Session 1	Prithvi	Pinaka	Sagarika	Arjun	Kaveri	C.V.Raman Auditorium
			Track 1 A MACHINE LEARNING Dr. A. A. Bazil Raj Dr. Niha Kamal Basha	Track 1 B MACHINE LEARNING Dr. Rishi Raj Sharma Dr. Inderjit Barara	Track 2 A AI & DEEP LEARNING Dr. Soumya S Dr. CRS Kumar	Track 3 DATA STORAGE, MANAGEMENT AND INNOVATION Dr. Arun Mishra Dr. Sangeeta Maimi	Track 4 A ENABLING TECHNOLOGIES AND APPLICATIONS Dr. Upasana Singh Dr. Juergen Seitz	
16:30 - 17:45	75	Session 2	Prithvi	Pinaka	Sagarika	Arjun	Kaveri	Special Session
			Track 1 C MACHINE LEARNING Dr. Sunita Dhavale Dr. Arun Mishra	Track 2 B AI & DEEP LEARNING Dr. CRS Kumar Mrityunjoy Pandey	Track 2 C AI & DEEP LEARNING Dr. Manisha J Nene Dr. Inderjit Barara	Track 3 DATA STORAGE, MANAGEMENT AND INNOVATION & Track 5 DATA SCIENCE TECHNIQUES FOR HANDLING EPIDEMIC, PANDEMIC Dr. Odelu Ojjela Dr. Debasish Pradhan	Track 4 B ENABLING TECHNOLOGIES AND APPLICATIONS Dr. D. Srikanth Dr. A. A. Bazil Raj	
11:15 - 12:30	75	Session 3	Prithvi	Pinaka	Sagarika	Arjun	Kaveri	C.V.Raman Auditorium
			Track 1 D MACHINE LEARNING Dr. Debasish Pradhan Dr. Juergen Seitz	Track 2 D AI & DEEP LEARNING Dr. Yogeshwar Singh Dadwha Dr. Inderjit Barara	Track 2 E AI & DEEP LEARNING Dr. Deepti Vidhyarthi Dr. Upasana Singh	Special Session Dr. A. A. Bazil Raj Dr. Sunita Dhavale	Track 1 E MACHINE LEARNING Dr. Rishi Raj Sharma Mrityunjoy Pandey	

The details of the track wise paper presentations during ICDMAI 2023

### 1<sup>st</sup> Session: 21 January 2023

12:15-13:30 Session Track1-A: Machine Learning

LOCATION: [Prithvi](#)

12:15 [Mrityunjoy Panday](#) (Cognizant Technology Solutions India Pvt Ltd, India)  
[V Manikanta Sanjay](#) (Cognizant Technology Solutions India Pvt Ltd, India)  
[Venkata Yashwanth Kanduri](#) (Cognizant Technology Solutions, India)  
**Time Series AutoML Hierarchical Factor Based Forecasting** ([abstract](#))  
 PRESENTER: [Mrityunjoy Panday](#)

12:30 [Prince Naqpal](#) (Banaras Hindu University, Varanasi, India)  
[Kartikey Gupta](#) (Banaras Hindu University, Varanasi, India)  
[Yashaswa Verma](#) (Banaras Hindu University, Varanasi, India)  
[Jyoti Singh Kirar](#) (Banaras Hindu University, Varanasi, India)  
**Paris Olympic (2024) Medal Tally Prediction** ([abstract](#))  
 PRESENTER: [Prince Naqpal](#)

12:45 [Dr. Krantee M. Jamdaade](#) (K.J. Somaiya Institute of Management, Vidhyavihar E, India)  
[Dr. Harshali Patil](#) (Mumbai Education Trust Institute of Computer Science, India)



**Prakruti Nishchitikanan of Human Body using Supervised Machine Learning Approach** ([abstract](#))

PRESENTER: [Dr. Harshali Patil](#)

13:00 [Shripad Bhatlawande](#) (Vishwakarma Institute of Technology Pune, India)

[Swati Shilaskar](#) (Vishwakarma Institute of Technology, India)

[Advait Kamathe](#) (Vishwakarma Institute of Technology, India)

[Chinmay Kulkarni](#) (Vishwakarma Institute of Technology, India)

[Neelam Chandollikar](#) (Vishwakarma institute of technology, India)

**A Smart System to Classify Walking and Sitting Activity based on EEG Signal** ([abstract](#))

PRESENTER: [Swati Shilaskar](#)

13:15 [K Anjali Kamath](#) (PES University, India)

[Divya T Puranam](#) (PES University, India)

[Prof. Ashwini M Joshi](#) (PES University, India)

**Aspect Based Product Recommendation System by Sentiment Analysis of User Reviews** ([abstract](#))

PRESENTER: [Divya T Puranam](#)

12:15-13:30 Session Track1-B: Machine Learning

LOCATION: [Pinaka](#)

12:15 [Itishree Panda](#) (NIT PATNA, India)

[Jyoti Prakash Singh](#) (NIT PATNA, India)

[Gayadhar Pradhan](#) (NIT PATNA, India)

**Optimized Feature Representation for Odia Document Clustering** ([abstract](#))

PRESENTER: [Itishree Panda](#)

12:30 [Hrushikesh Bhosale](#) (FLAME University, India)

[Vigneshwar Ramakrishnan](#) (SASTRA Deemed to be University, India)

[Aamod Sane](#) (FLAME University, India)

[Jayaraman Valadi](#) (FLAME University, India)

**Distributed Reduced Alphabet Representation for Predicting Proinflammatory Peptides** ([abstract](#))

PRESENTER: [Jayaraman Valadi](#)

12:45 [Stefan Hutter](#) (DHBW Heidenheim, Germany)

[Noah Winkler](#) (DHBW Heidenheim, Germany)

[Jürgen Seitz](#) (DHBW Heidenheim, Germany)

[Neha Sharma](#) (Tata Consultancy Services, India)

**Economic growth prediction and performance analysis of developed and developing countries using ARIMA, PCA and k-means clustering** ([abstract](#))

PRESENTER: [Stefan Hutter](#)

13:00 [Nishanth P](#) (BMS College Of Engineering, India)

[Vara Prasad G](#) (BMSCE, India)

**Forest Fire Detection and Classification Using Deep Learning Concepts** ([abstract](#))

PRESENTER: [Nishanth P](#)

13:15 [Umesh Kokate](#) (Research Scholar, SKNCOE, Vadgaon, Pune, India)

[Arvind Deshpande](#) (Principal and Professor in Computer Engineering, SKNCoE, Vadgaon, Pune, India)

[Parikshit Mahalle](#) (Professor and Head, Department of Artificial Intelligence and Data Science, B R A C T's, VIIT, Kondhawa (Bk), Pune, India)

**Identifying Trends using Improved Affinity Propagation (IMAP) Clustering Algorithm on Evolving Data Stream** ([abstract](#))

PRESENTER: [Umesh Kokate](#)

12:15-13:30 Session Track2-A: AI & Deep Learning

LOCATION: [Sagarika](#)

12:15 [Nikhil Satish](#) (National Institute of Technology Karnataka(NITK), Surathkal, India, India)

[C R Suthikshn Kumar](#) (Defence Institute of Advanced Technology (DIAT) (Deemed to Be University), Pune, India, India)

**ARTSAM : Augmented Reality App For Tool Selection In Aircraft Maintenance** ([abstract](#))

PRESENTER: [Nikhil Satish](#)

12:30 [Sophiya Antony](#) (College of Engineering, Trivandrum, India)

[Dr. Dhanya S Pankaj](#) (College of Engineering, Trivandrum, India)

**Automatic Text Summarization using Word embeddings** ([abstract](#))

PRESENTER: [Sophiya Antony](#)

12:45 [Deap Daru](#) (Dwarkadas J. Sanghvi College of Engineering, India)

[Hitansh Surani](#) (Dwarkadas J. Sanghvi College of Engineering, India)

[Harit Koladia](#) (Dwarkadas J. Sanghvi College of Engineering, India)

[Kunal Parmar](#) (Dwarkadas J. Sanghvi College of Engineering, India)

[Kriti Srivastava](#) (Dwarkadas J. Sanghvi College of Engineering, India)

**Depression Detection using Hybrid Transformer Networks** ([abstract](#))

PRESENTER: [Deap Daru](#)

13:00 [Nikita Chanalya](#) (Amrita Vishwa Vidyapeetham, Kerala, India)

[Anagha Ramadas](#) (Amrita Vishwa Vidyapeetham, Kerala, India)

[Jyothisha J Nair](#) (Amrita Vishwa Vidyapeetham, Kerala, India)

[Sreelekshmi V](#) (Amrita Vishwa Vidyapeetham, Kerala, India)

**Improving Weed Detection and Classification using Vision Transformers** ([abstract](#))

PRESENTER: [Nikita Chanalya](#)

13:15 [Sawan Rai](#) (SCSET, Bennett University, Greater Noida, India)

[Ramesh Chandra Belwal](#) (CSE Dept, B.T.K.I.T., Dwarahat, Uttarakhand, 263653, India)

[Abhinav Sharma](#) (Dept. of Computer Science and Engineering, ITER, Shiksha 'O' Anusandhan, Bhubaneswar, India)

**Investigating the Application of Multi-Lingual Transformer in Graph-based Extractive Text Summarization for Hindi Text** ([abstract](#))

PRESENTER: [Abhinav Sharma](#)

12:15-13:30 Session Track3: Data Storage, Management & Technologies

LOCATION: [Arjun/B-252](#)

12:15 [Kaushalya Thopate](#) (Vishwakarma Institute of Technology Pune, India)

[Bhushan Sangale](#) (vishwakarma institute of technology, India)

[Chinmay Saraf](#) (vishwakarma institute of technology, India)

[Pratiksha Sarak](#) (vishwakarma institute of technology, India)

[Sumeet Sapkal](#) (Vishwakarma institute of technology, India)

[Yukta Saraf](#) (Vishwakarma institute of technology, India)

**A web based online voting system based on blockchain** ([abstract](#))

PRESENTER: [Sumeet Sapkal](#)

12:30 [Dr Pankaj Tiwari](#) (CMR University, India)

**MODERATING ROLE OF PROJECT FLEXIBILITY ON SENIOR MANAGEMENT COMMITMENT AND PROECT RISKS IN ACHIEVING PROJECT SUCCESS IN FINANCIAL SERVICES** ([abstract](#))

12:45 [Gs Mani](#) (IEEE Pune Section, India)

**Growth profile of using AI techniques in Antenna Research over three decades** ([abstract](#))

13:00 [Ketaki Pattani](#) (Institute of Advanced Research, Gandhinagar, Gujarat, India, India)

[Sunil Gautam](#) (Nirma University, Ahmedabad, Gujarat, India, India)

**Defense and evaluation against covert channel based attacks in Android smartphones** ([abstract](#))

PRESENTER: [Ketaki Pattani](#)

13:15 [Rakesh Kumar Chawla](#) (National Crime Records Bureau, Ministry of Home Affairs, India)

[J.S. Sodhi](#) (Amity University, India)

[Triveni Singh](#) (Superintendent of Police, Cyber Crime at Uttar Pradesh Police, India)

**STUDY OF THE NEED FOR EFFECTIVE CYBER SECURITY TRAININGS IN INDIA** ([abstract](#))

PRESENTER: [Rakesh Kumar Chawla](#)

12:15-13:30 Session Track4-A: Enabling Technologies

LOCATION: [Kaveri/B-266](#)

12:15 [Dr. Pradheep Kumar K](#) (BITS Pilani, India)

[Dhinakaran. K. Acm](#) (Dhanalakshmi College of Engineering, India)

**Quantum Web-Based Health Analytics System** ([abstract](#))

PRESENTER: [Dr. Pradheep Kumar K](#)

12:30 [Onkar Sangale](#) (Vishwakarma Institute of Technology,Pune, India)

[Kaushalya Thopate](#) (Vishwakarma Institute of Technology,Pune, India)

[Atharv Sangale](#) (Vishwakarma Institute of Technology,Pune, India)

[Sandesh Kawane](#) (Vishwakarma Institute of Technology,Pune, India)

[Sandesh Baqmare](#) (Vishwakarma Institute Of Technology,Pune, India)

[Zaki Sange](#) (Vishwakarma Institute of Technology,Pune, India)

**Accidental Alert and Ambulance Notifier System** ([abstract](#))

PRESENTER: [Onkar Sangale](#)

12:45 [Kaushalya Thopate](#) (Vishwakarma Institute of Technology Pune, India)

[Yashraj Sawant](#) (Vishwakarma Institute Of Technology, India)

[Sahil Sawant](#) (Vishwakarma Institute of Technology, Pune, India)

[Avadhut Sawant](#) (Vishwakarma Institute of Technology, Pune, India)

[Atharvsinh Sawant](#) (Vishwakarma Institute of Technology, Pune, India)

[Sanchit Sawarkar](#) (Vishwakarma Institute of Technology, Pune, India)

**Blink Controlled Wheelchair** ([abstract](#))

PRESENTER: [Sahil Sawant](#)

13:00 [Karan Owalekar](#) (Tata Consultancy Services, India)

[Ujas Italia](#) (Tata Consultancy Services, India)

[Vijeta](#) (Tata Consultancy Services, India)

[Shailesh Deshpande](#) (TCS Research, India)

**Comparative assessment of methane leak detection using hyperspectral data.** ([abstract](#))

PRESENTER: [Karan Owalekar](#)

13:15 [Sawan Bhattacharyya](#) (Ramkrishna Mission Vivekananda Centenary College, India)

[Ajanta Das](#) (Amity University, Kolkata, India)

[Anindita Banerjee](#) (CDAC, India)

[Amlan Chakrabarti](#) (University of Calcutta, India)

**Comparative Study of Noises over Quantum Key Distribution Protocol** ([abstract](#))

PRESENTER: [Anindita Banerjee](#)





Glimpses of Delegates, Track Chairs, Session Chairs, Session Coordinator and Participants in Session I on 21 January 2023

## 2<sup>nd</sup> Session: 21 January 2023

16:30-17:45 Session Sp.Session1: Bio Signal Processing using Deep Learning

LOCATION: [Sir C.V. Raman Auditorium](#)

16:30 [Shivani Saxena](#) (INSTITUTE OF ADVANCED RESEARCH, India)

[Abhijeeth Nair](#) (INSTITUTE OF ADVANCED RESEARCH, India)

[Ahsan Z. Rizvi](#) (INSTITUTE OF ADVANCED RESEARCH, India)

**Analysis of Covid-19 Genome using Continuous Wavelet Transform** ([abstract](#))

PRESENTER: [Shivani Saxena](#)

16:45 [S Amutha](#) (Vellore Institute of Technology, Chennai, india, India)

[Joyal S](#) (Saveetha Engineering College (Autonomous), India)

[Niha K](#) (Vellore Institute of Technology, Vellore, india, India)

[M K Dharani](#) (Kongu Engineering College, India)

**Machine Learning Model for Brain Stock Prediction** ([abstract](#))

PRESENTER: [Niha K](#)

17:00 [Hariharan R S](#) (Vellore Institute of Technology, India)

[Abdul Gaffar H](#) (Vellore Institute of Technology, India)

[Manikandan K](#) (Vellore Institute of Technology, India)

**The Third Eye: An AI Mobile Assistant for Visually Impaired People** ([abstract](#))

17:15 [Aarthi G](#) (B.S.Abdur Rahman Crescent Institute of Science and Technology, India)

[Karthikha R](#) (B.S.Abdur Rahman Crescent Institute of Science and Technology, India)

[Sharmila Sankar](#) (B.S.Abdur Rahman Crescent Institute of Science and Technology, India)

[Sharon Priya S](#) (B.S.Abdur Rahman Crescent Institute of Science and Technology, India)

[Najumnissa Jamal D](#) (B.S.Abdur Rahman Crescent Institute of Science and Technology, India)

[Aisha Banu W](#) (B.S.Abdur Rahman Crescent Institute of Science and Technology, India)

**Application of Machine Learning in Customer Services and E-commerce** ([abstract](#))

PRESENTER: [Aarthi G](#)

17:30 [S.M. Shifana Rayesha](#) (B S Abdur Rahman Crescent Institute of science & Technology, India)

[Dr. Aisha Banu](#) (B S Abdur Rahman Crescent Institute of Science & Technology, India)

[S. Sharon Priya](#) (B.S. Abdur Rahman Crescent Institute of Science & Technology, India)

**Protein structure prediction using Neural Network** ([abstract](#))

16:30-17:45 Session Track1-C: Machine Learning

LOCATION: [Prithvi](#)

16:30 [Ralf Höchenberger](#) (Allianz Kunde und Markt GmbH, Germany, Germany)

[Detlev Hummel](#) (Institute of Economics and Finance, University Opole, Poland)

[Juergen Seitz](#) (Baden-Wuerttemberg Cooperative State University Heidenheim, Germany)

**Do women shy away from cryptocurrency investment? Cross-country evidence from survey data** ([abstract](#))

PRESENTER: [Ralf Höchenberger](#)

16:45 [Aditi Bornare](#) (MKSSS's Cummins College of Engineering for Women, Pune, India)

[Arushi Dubey](#) (MKSSS's Cummins College of Engineering for Women, Pune, India)

[Rutuja Dherange](#) (MKSSS's Cummins College of Engineering for Women, Pune, India)

[Srushti Chiddarwar](#) (MKSSS's Cummins College of Engineering for Women, Pune, India)

[Prajakta Deshpande](#) (MKSSS's Cummins College of Engineering for Women, Pune, India)

**TROOMATE - FINDING A PERFECT ROOMMATE** ([abstract](#))

PRESENTER: [Arushi Dubey](#)

17:00 [Deboparna Majumder](#) (Jadavpur University, India)

[Baneswar Sarker](#) (IIT Kharagpur, India)

[Souvik Das](#) (IIT Kharagpur, India)

[Jhareswar Maiti](#) (IIT Kharagpur, India)

**A Regression-Based Modeling of Cost-Benefit Analysis for Safety Strategy Implementation in Steel Industry** ([abstract](#))

PRESENTER: [Deboparna Majumder](#)

17:15 [Chaman Banolia](#) (Tata Consultancy Services Limited, India)

[K Ram Prabhakar](#) (Tata Consultancy Services Limited, India)

[Shailesh Deshpande](#) (Tata Consultancy Services Limited, India)

**Monitoring urban water-logging using SAR - A Mumbai case study** ([abstract](#))

PRESENTER: [Chaman Banolia](#)

17:30 [Dr Tanuja Fegade](#) (KCES's Institute of Management and Research, Jalgaon, India)

[Bhausheeb Pawar](#) (School of Computer Science , KBC North Maharashtra University, India)

[Ram Bhavsar](#) (School of computer Science, KBC NMU, Jalgaon, India)

**Crop Recommendation using Hybrid Ensembles Model by extracting Statistical measures** ([abstract](#))

PRESENTER: [Dr Tanuja Fegade](#)

16:30-17:45 Session Track2-B: AI & Deep Learning

LOCATION: [Pinaka](#)

16:30 [Ashish Ranjan](#) (DIAT, Pune, India)

[Sunita Dhavale](#) (DIAT, Pune, India)

[Suresh Kumar](#) (DIPR, DRDO, India)

**Real-Time Fire Detection using YOLO Algorithms** ([abstract](#))

PRESENTER: [Ashish Ranjan](#)

16:45 [Indrajit Kar](#) (SIEMENS Technology and Services Private Limited, India)

[Sudipta Mukhopadhyay](#) (SIEMENS Technology and Services Private Limited, India)

[Bijon Guha](#) (SIEMENS Technology and Services Private Limited, India)

**A Dual Fine Grained Rotated Neural Network for Aerial Solar Panel Health Monitoring and**

**Classification** ([abstract](#))

PRESENTER: [Sudipta Mukhopadhyay](#)

17:00 [Bhavyashree H L](#) (BMS College of Engineering, India)

[Golla Varaprasad](#) (BMS College of Engineering, India)

**Morbidity Detection from Clinical Text Data using Artificial Intelligence Technique** ([abstract](#))

PRESENTER: [Bhavyashree H L](#)

17:15 [Israa Bint Rahman Salman](#) (B.M.S College of Engineering, India)

[Golla Varaprasad](#) (B.M.S College of Engineering, India)

**Product Recommendation System using Deep Learning Techniques: CNN and NLP** ([abstract](#))

PRESENTER: [Israa Bint Rahman Salman](#)

17:30 [Nukala Divakar Sai](#) (IIT Kharagpur, India)

[Baneswar Sarker](#) (IIT Kharagpur, India)

[Ashish Garg](#) (IIT Kharagpur, India)

[Jhareswar Maiti](#) (IIT Kharagpur, India)

**A Comparative Study of Distance-based Clustering Algorithms in Fuzzy Failure Modes and Effects Analysis** ([abstract](#))

PRESENTER: [Nukala Divakar Sai](#)

16:30-17:45 Session Track2-C: AI & Deep Learning

LOCATION: [Sagarika](#)

16:30 [Manish Sinha](#) (Tata Consultancy Services, India)

**Real-time learning towards assets allocation** ([abstract](#))

16:45 [Shinjini Halder](#) (Government College of Engineering and Leather Technology, India)

[Tuhinangshu Gangopadhyay](#) (Government College of Engineering and Leather Technology, India)

[Paramik Dasgupta](#) (Asian Institute of Technology, India)

[Kingshuk Chatterjee](#) (Government College of Engineering and Ceramic Technology, India)

[Debayan Ganguly](#) (Government College of Engineering and Leather Technology, India)

[Surjadeep Sarkar](#) (Government College of Engineering and Leather Technology, India)

[Sudipta Roy](#) (Jio Institute, India)

**Fetal Brain Component Segmentation using 2-way Ensemble U-Net** ([abstract](#))

PRESENTER: [Tuhinangshu Gangopadhyay](#)

17:00 [Sonam Sharma](#) (TATA CONSULTANCY SERVICES (TCS), India)

[Sumukh Sirmokadam](#) (TATA CONSULTANCY SERVICES (TCS), India)

[Pavan Chittimalli](#) (TATA CONSULTANCY SERVICES (TCS), India)

**Explainable Automated Coding of Medical Narratives using Identification of Hierarchical Labels** ([abstract](#))

PRESENTER: [Pavan Chittimalli](#)

17:15 [Shashwat Shahi](#) (Tata Consultancy Services, India)

[Garqi Kulkarni](#) (Tata Consultancy Services, India)

[Sumukh Sirmokadam](#) (Tata Consultancy Services, India)

[Shailesh Deshpande](#) (Tata Consultancy Services, India)

**An unsupervised image processing approach for Weld Quality Inspection** ([abstract](#))

PRESENTER: [Garqi Kulkarni](#)

17:30 [Savitri Kulkarni](#) (UVCE, India)

[P Deepa Shenoy](#) (UVCE, India)

[Venugopal K R](#) (UVCE, India)

**CoffeeGAN: An Effective Data Augmentation Model for Coffee Plant Diseases.** ([abstract](#))

PRESENTER: [Savitri Kulkarni](#)

16:30-17:45 Session Track3&5: Data Storage, Management & Technologies & Technologies to handle Pandemic

LOCATION: [Arjun/B-252](#)

- 16:30 [Pramod Kanjalkar](#) (Vishwakarma Institute of Technology, Pune, India)  
[Prasad Chinchole](#) (Vishwakarma Institute of Technology, Pune, India)  
[Archit Chitre](#) (Vishwakarma Institute of Technology, Pune, India)  
[Jyoti Kanjalkar](#) (Vishwakarma Institute of Technology, Pune, India)  
[Prakash Sharma](#) (PCOMBINATOR, India)  
**Economical Solution to Automatic Evaluation of an OMR Sheet Using Image Processing** ([abstract](#))  
PRESENTER: [Prasad Chinchole](#)
- 16:45 [Arun Mitra](#) (Sree Chitra Tirumala Institute for Medical Sciences and Technology, Trivandrum, Kerala, India, India)  
[Biju Soman](#) (Sree Chitra Tirumala Institute for Medical Sciences and Technology, Trivandrum, Kerala, India, India)  
[Rakhal Gaitonde](#) (Sree Chitra Tirumala Institute for Medical Sciences and Technology, Trivandrum, Kerala, India, India)  
[Tarun Bhatnagar](#) (National Institute of Epidemiology, Chennai, India, India)  
[Engelbert Nieuhaus](#) (University of Koblenz and Landau, Landau, Germany, Germany)  
[Sajin Kumar](#) (University of Kerala, Trivandrum, Kerala, India, India)  
**Data science approaches to public health: case studies using routine health data from India** ([abstract](#))  
PRESENTER: [Arun Mitra](#)
- 17:00 [Anussha Murali](#) (Jawaharlal Nehru University, India)  
[Arun Mitra](#) (Sree Chitra Tirunal Institute for Medical Sciences and Technology, India)  
[Sundeep Sahay](#) (University of Oslo, Norway)  
[Biju Soman](#) (Sree Chitra Tirunal Institute for Medical Sciences and Technology, India)  
**Outbreak and Pandemic Management in MOOCs: Current Status and Scope for Public Health Data Science Education** ([abstract](#))  
PRESENTER: [Anussha Murali](#)
- 17:15 [Supreet Kaur](#) (Guru Nanak Dev University, India)  
[Dr Sandeep Sharma](#) (Guru Nanak Dev University, India)  
**Arboviral Epidemic Disease Forecasting - A Survey on Diagnostics and Outbreak Models** ([abstract](#))  
PRESENTER: [Supreet Kaur](#)

16:30-17:45 Session Track4-B: Enabling Technologies

LOCATION: [Kaveri/B-266](#)

- 16:30 [Arsheeye Shahapure](#) (Computer Science and Engineering, Dr. Vishwanath Karad MIT-World Peace University, Paud Road, Pune-411036, India, India)  
[Anindita Banerjee Banerjee](#) (Corporate Research and Development, Centre for Development of Advanced Computing, India)  
[Rehan Deshmukh](#) (School of Biosciences and Technology, Dr. Vishwanath Karad MIT-World Peace University, Paud Road, Pune-411036, India, India)  
**The Effect of Comorbidity on the Survival Rates of COVID-19 Using Quantum Machine Learning** ([abstract](#))  
PRESENTER: [Arsheeye Shahapure](#)
- 16:45 [Isha Deshpande](#) (cummins college of engineering, India)  
[Rutuja Sangitrao](#) (cummins college of engineering, India)  
[Leena Sharma](#) (cummins college of engineering, India)  
**Study of NFT marketplace in metaverse** ([abstract](#))  
PRESENTER: [Isha Deshpande](#)
- 17:00 [Shital Dinde](#) (Department of Technology, Shivaji University, Kolhapur, Maharashtra, India)  
[Suresh Shirgave](#) (Department of Computer Science and Engineering, DKTE's Textile and Engineering Institute, Ichalkaranji, Maharashtra, India)  
**Secure Authentication of IoT devices using upgradable Smart Contract and Fog-Blockchain Technology** ([abstract](#))  
PRESENTER: [Shital Dinde](#)

## 7<sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023)

17:15 [Anindita Banerjee](#) (C-DAC, India)

[Manish Modani](#) (NVIDIA, India)

[Abhishek Das](#) (C-DAC, India)

**Multi-GPU enabled quantum computing on HPC-AI system** ([abstract](#))

PRESENTER: [Anindita Banerjee](#)



Glimpses of Delegates, Track Chairs, Session Chairs, Session Coordinator and Participants in Session II on 21 January 2022

### 3<sup>rd</sup> Session: 22 January 2023

11:00-12:15 Session Sp.Session2: Bio Signal Processing using Deep Learning

LOCATION: [Arjun/B-252](#)

11:00 [Megala G](#) (Vellore Institute of Technology, India)

[Swarnalatha P](#) (Vellore Institute of Technology, India)

[Venkatesan R](#) (Vellore Institute of Technology, India)

**Detecting Bone Tumor on Applying Edge Computational Deep Learning Approach** ([abstract](#))

PRESENTER: [Megala G](#)



- 11:15 [G.N Balaji](#) (Vellore Institute of Technology, Vellore, India)  
[S V Suryanarayana](#) (CVR College of Engineering, India)  
[Vigneswaran T](#) (SRM TRP Engineering College, India)  
**Convolution Neural Network for Weed Detection** ([abstract](#))

11:00-12:15 Session Track1-D: Machine Learning

LOCATION: [Prithvi](#)

- 11:00 [Reetun Maiti](#) (IIT Kharagpur, India)  
[Balagopal G Menon](#) (IIT Kharagpur, India)  
**Predicting Injury Severity in Construction using Logistic Regression** ([abstract](#))  
PRESENTER: [Reetun Maiti](#)
- 11:15 [Manika Garg](#) (University of Delhi, India)  
[Anita Goel](#) (Dyal Singh College, University of Delhi, India)  
**Detection of Internet Cheating in Online Assessments using Cluster Analysis** ([abstract](#))  
PRESENTER: [Manika Garg](#)
- 11:30 [Vivek Saxena](#) (DRDO, India)  
[Dr. Upasna Singh](#) (DIAT, India)  
[Dr. L K Sinha](#) (DRDO, India)  
**LANDSLIDE SUSCEPTIBILITY MAPPING USING J48 DECISION TREE AND ITS ENSEMBLE METHODS FOR RISHIKESH TO GANGOTRI AXIS** ([abstract](#))  
PRESENTER: [Vivek Saxena](#)
- 11:45 [Ieesha Deshmukh](#) (MKSSS's Cummins College of Engineering for Women , Pune, India)  
[Pradnya Agrawal](#) (MKSSS's Cummins College of Engineering for Women , Pune, India)  
[Aboli Khursale](#) (MKSSS's Cummins College of Engineering for Women , Pune, India)  
[Neha Lahane](#) (MKSSS's Cummins College of Engineering for Women , Pune, India)  
[Harsha Sonune](#) (MKSSS's Cummins College of Engineering for Women , Pune, India)  
**Graphology based behavior prediction : Case study analysis** ([abstract](#))  
PRESENTER: [Ieesha Deshmukh](#)
- 12:00 [Santosh Kumar Vishwakarma](#) (MANIPAL UNIVERSITY JAIPUR, India)  
[Chour Singh Rajpoot](#) (MANIPAL UNIVERSITY JAIPUR, India)  
**Comparative Analysis of Recommendation System using Similarity Techniques** ([abstract](#))  
PRESENTER: [Santosh Kumar Vishwakarma](#)

11:00-12:15 Session Track1-E: Machine Learning

LOCATION: [Kaveri/B-266](#)

- 11:00 [Deep Pancholi](#) (Amrita Vishwa Vidyapeetham, Coimbatore, India)  
[Selvi C.](#) (Indian Institute of Information Technology, Kottayam, Kerala, India)  
**Study of Cold-start Product Recommendations and its Solutions** ([abstract](#))  
PRESENTER: [Deep Pancholi](#)
- 11:15 [Harikumar Radhakrishnan](#) (Indian Navy, India)  
[Saikat Bank](#) (DIAT, India)  
[Bharath R](#) (Defence Institute of Advanced Technology, India)  
[C P Ramanarayanan](#) (DEFENCE INSTITUTE OF ADVANCED TECHNOLOGY, India)  
**Statistics Driven Suspicious Event Detection of Fishing Vessels based on AIS Data** ([abstract](#))  
PRESENTER: [Saikat Bank](#)
- 11:30 [Harikumar Radhakrishnan](#) (Indian Navy, India)  
[Shyam Sundar](#) (DIAT, India)  
[Bharath R](#) (Defence Institute of Advanced Technology, India)  
[C P Ramanarayanan](#) (DEFENCE INSTITUTE OF ADVANCED TECHNOLOGY, India)  
**Suspicious Event Detection of Cargo Vessels based on AIS Data** ([abstract](#))

PRESENTER: [Shyam Sundar](#)

11:00-12:15 Session Track2-D: AI & Deep Learning

LOCATION: [Pinaka](#)

11:00 [Sita Yadav](#) (Army Institute of Technology, India)

[Dr. Sandeep Chaware](#) (RSCOE, JSPM, India)

**Video object detection with an improved classification approach** ([abstract](#))

PRESENTER: [Sita Yadav](#)

11:15 [Ketki Deshmukh](#) (MPSTME, NMIMS University, Mumbai, India)

[Dr. Avinash More](#) (MPSTME, NMIMS University, Mumbai, India)

**Modified Long Short-Term Memory Algorithm for faulty node detection using node's raw data pattern** ([abstract](#))

PRESENTER: [Ketki Deshmukh](#)

11:30 [Aditya Srinivas Menon](#) (Indian Institute of Information Technology Kottayam, India)

[Anand Konjenqbam](#) (Indian Institute of Information Technology Kottayam, India)

**X-ABI: Towards Parameter Efficient Multilingual Adapter Based Inference for Cross-Lingual Transfer** ([abstract](#))

PRESENTER: [Aditya Srinivas Menon](#)

11:45 [Archana Patil](#) (College of Engineering Pune, India)

[Dr. Shashikant Ghumbre](#) (GCOE&R, Avasari, India)

[Dr. Vahida Attar](#) (COEP, India)

**Named Entity Recognition over Dialogue Dataset using Pre-trained Transformers** ([abstract](#))

PRESENTER: [Archana Patil](#)

12:00 [Arvind Kumar](#) (CSIR-Central Scientific Instruments Organisation, India)

[Bhargab Das](#) (CSIR-Central Scientific Instruments Organisation, India)

[Raj Kumar](#) (CSIR-Central Scientific Instruments Organisation, India)

[Virendra Kumar](#) (CSIR-Central Scientific Instruments Organisation, India)

**Comparative Study of Depth Estimation from 2-D Scene Using Deep Learning Model** ([abstract](#))

PRESENTER: [Arvind Kumar](#)

11:00-12:15 Session Track2-E: AI & Deep Learning

LOCATION: [Sagarika](#)

11:00 [Jyoti Kanjalkar](#) (VIT, Pune, India)

[Abu Ansari](#) (VIT, Pune, India)

[Kaivalya Aole](#) (VIT, Pune, India)

[Arya Tiwari](#) (VIT, Pune, India)

[Harshal Abak](#) (VIT, Pune, India)

[Pramod Kanjalkar](#) (VIT, Pune, India)

**Analysis of Machine Learning Algorithms for COVID Detection Using Deep Learning** ([abstract](#))

PRESENTER: [Abu Ansari](#)

11:15 [Md Shahzeb](#) (Defence Institute of Advanced Technology, Pune, India)

[Sunita Dhavale](#) (Defence Institute of Advanced Technology (DIAT), Pune, India)

[D Srikanth](#) (Defence Institute of Advanced Technology (DIAT), Pune, India)

[Suresh Kumar](#) (Defence Institute of Psychological Research (DIPR), Delhi, India)

**DCNN-based Transfer Learning approaches for Gender Recognition** ([abstract](#))

PRESENTER: [Md Shahzeb](#)

11:30 [Mahima Arya](#) (Unikul Solutions Pvt. Limited, India)

[S V S N V G Krishna Murthy](#) (Defence Institute of Advanced Technology, India)

[Priyesh Kumar Roy](#) (Defence Institute of Advanced Technology, India)

**CycleGAN implementation on cross-modality transfer between Magnetic resonance image (MRI) and Computed tomography (CT) images** ([abstract](#))

PRESENTER: [Priyesh Kumar Roy](#)

11:45 [Nilanjan Sinhababu](#) (Indian Institute of Technology Kharagpur, India)

[Monalisa Sarma](#) (Indian Institute of Technology Kharagpur, India)

[Debasis Samanta](#) (Indian Institute of Technology Kharagpur, India)

**Improving Autoencoder based Recommendation Systems** ([abstract](#))

PRESENTER: [Nilanjan Sinhababu](#)



Glimpses of Delegates, Track Chairs, Session Chairs, Session Coordinator and Participants in Session III on 223January 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.

**Annexure A**

***Conference Brochure***

# 7<sup>th</sup> International Conference on Data Management, Analytics and Innovation (ICDMAI 2023)

## 7<sup>th</sup> International Conference on Data Management, Analytics & Innovation

Flagship conference of Society for Data Science  
 >>> 20-22 January 2023



### >>> ICDMAI 2023

<b>Chief Patron</b> 	<b>Dr. Samir V. Kamat</b> Member of Council & Chairman (2022)	<b>Hosted by:</b> Defence Institute of Advanced Technology
<b>Conference Patrons</b> 	<b>Dr. C. P. Ramakrishnan</b> Vice-Chancellor, Anna University, Chennai	<b>In Association With</b> NIELIT
<b>GENERAL CHAIRS</b> 	<b>Dr. P. K. Sinha</b> Head, Computer and Learning, IIT Madras	<b>Prof. Valentini Emilia Sotoca</b> Vice Rector, University of Rome Tor Vergata
<b>EXECUTIVE MEMBERS OF SOCIETY FOR DATA SCIENCE</b> 	<b>Anand Chakrabarti</b> Neta Sharma	<b>Dr. H. Mangalath</b>

### >>> TRACKS & TOPICS

Seventh International Conference on Data Management, Analytics and Innovation (ICDMAI - 2023) solicit papers in the areas of specific research domains from all viewpoints are invited from delegates all over the globe. It is planned to submit selected and presented original, unpublished research papers in the proceedings with SPRINGER in their prestigious Lecture Notes in Networks and Systems (LNNS) series, which is indexed by SCOPUS, INSPEC, WII Frankfurt eG, ZEMATA, SCImago and all books published in the series are submitted for consideration in Web of Science. Following are the topics of interest but not limited to:



### >>> TRACKS & TOPICS

**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, Bio-informatics

**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 Diagnostic 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

ICDMAI 2023 Paper Submission Link: [https://icdmai.org/paper\\_submission](https://icdmai.org/paper_submission)



# ICDMAI 2023 7<sup>th</sup> International Conference on Data Management, Analytics & Innovation



E-mail : [secretary@s4ds.org](mailto:secretary@s4ds.org)

CALL: +91-9923602490

**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
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