2ND INTERNATIONAL CONFERENCE ON

ARTIFICIAL INTELLIGENCE AND SPEECH TECHNOLOGY

(AIST – 2020)

(www.aist2020.com)

19 – 20 November, 2020

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Department of Information Technology

Indira Gandhi Delhi Technical University for Women

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Kashmere Gate, Delhi-110006

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2ND INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE AND SPEECH TECHNOLOGY (AIST-2020)

Dates: 19th – 20th November, 2020

(www.aist2020.com)

Chief Guest (Inauguration Function)

Prof. V Ramgopal Rao
Director, IIT Delhi

Key Note Speakers

Dr. S. Nakamura
NAIST, Japan

Dr. Nemeth Geza
Budapest Univ., Hungary

Dr Amita Dev
Vice Chancellor, IGDTUW

Dr. Win Pa Pa,
UCSY, Myanmar.

Dr. Manish Bhide
Chief Solution Architect, IBM

Dr. Milan Stehlik,
Johannes Kepler University, Austria

Dr. S. Umesh
Indian Institute of Technology - Madras

Dr. S S Agrawal
Emeritus Scientist, CSIR

General Chair
Dr Amita Dev
Vice Chancellor, IGDTUW

Technical Program Chair
Dr. S S Agrawal
Emeritus Scientist, CSIR

Conference Secretary
Prof. Arun Sharma
Professor and Head, Department of IT, IGDTUW

For further details, please visit the conference website: **www.aist2020.com** or write at aist2020@igdtuw.ac.in.

2nd INTERNATIONAL CONFERENCE ON ARTIFICIAL INTELLIGENCE AND SPEECH TECHNOLOGY (AIST-2020)

19th-20th November, 2020

Inauguration Schedule

Time	Activity
09:30 AM – 09:35 AM	Welcome of the Guests
09:35 AM – 09:40 AM	Saraswati Vandana and Lighting of Lamp
09:40 AM – 09:50 AM	Welcome Address by Dr Amita Dev, General Chair-AIST-2020 and VC, IGDTUW
09:50 AM – 10:00 AM	Conference Report by Dr S S Agrawal, Technical Program Chair, AIST-2020
10:00 AM – 10:10 AM	Address by Chief Guest – Prof. V Ramgopal Rao, Director, IIT Delhi
10:10 AM – 10:12 AM	Release of Conference Souvenir
10:12 AM – 10:15 AM	Vote of Thanks by Prof. Arun Sharma, Organizing Secretary, AIST-2020
10:15 AM – 10:30 AM	University at a Glance

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Master Program Schedule

Day 1 (19th November, 2020)

Time	Activity
9:30 AM - 10:30 AM	Inauguration
10:30 AM - 11:15 AM	Invited Talk 1 (Prof. S. Nakamura (NAIST, Japan) Session Chair: Prof S S Agrawal, Emeritus Scientist, CSIR
11:15 AM - 12:00 Noon	Invited Talk 2 (Dr Manish Bhide, Chief Solution Architect, IBM) Session Chair: Prof. Arun Sharma, IGDTUW
12:00 AM - 01:30 PM	Technical Session 1 (Paper Presentation): Prof. Samudra Vijay, IIT Guwahati
01:30 PM - 02:30 PM	Lunch
02:30 PM – 03:15 PM	Invited Talk 3 (Prof Nemeth Geza, Budapest Univ. of Technology and Economics, Hungary), Session Chair: Dr. Amita Dev, VC, IGDTUW
03:15 PM – 04:45 PM	Technical Session 2 and 3 (Parallel Paper Presentation) Session Chair: Prof. Anand Nayyar, Duy Tan University, Da Nang, Vietnam Session Chair: Dr Swaran Lata, Former Sr. Director and Head, TDIL, DeitY

Day 2 (20th November, 2020)

Time	**Activity**
09:45 AM - 10:15 AM	Invited Talk 4 (Prof Win Pa Pa, NLP Lab, UCSY, Myanmar), Session Chair: Dr. Karunesh Arora, CDAC
10:15 AM - 11:00 AM	Invited Talk 5 (Prof. Umesh S, IIT Madras), Session Chair: Dr P K Saxena, Pr. Scientific Advisor – Fellow, GoI
11:00 AM - 12:30 PM	Technical Session 4 (Paper Presentation), Session Chair: Prof. Ashish Seth, Inha University, Tashkent (Uzb)
12:30 PM – 01:30 PM	Lunch Session
01:30 PM – 02:45 PM	Technical Session 5 (Paper Presentation) Session Chair : Dr. Priyanka Chawla, LPU
02:45 PM - 03:30 PM	Invited Talk 6 (Dr. Milan Stehlik, Johannes Kepler University, Austria) Session Chair: Prof. Arun Sharma, IGDTUW
03:45 PM - 04:45 PM	Technical Session 6 (Paper Presentation), Session Chair: Dr S K Jain, Chief Forensic Scientist, MHA, GoI and Dr Ihtiram Khan, Jamia Hamdard
04:45 PM – 05:15 PM	Valedictory Session

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Technical Session: 01 **Date and Time: 19/11/2020, 12:00 AM - 01:30 PM**

S. No	Paperid	Authors	Title
1	20	Amritpreet Kaur, Rohit Sachdeva and Amitoj Singh	Classification Approaches For Automatic Recognition System
2	32	Pratik Wagh, Megha Panjwani and Amrutha S	Early Detection of PCOD using Machine Learning Techniques
3	36	Neha Sharma, Reetvik Chatterjee, Akhil Bisht and Harit Yadav	Application of Real-Time Object Detection Techniques for Bird Detection
4	37	Rajesh Nagaraja and Chandrasekar Shastry	Machine Learning Algorithms used for Detection of Prostate Cancer
5	51	Veenu	How Training of sigmoidal FFANN effected by weight initialization
6	60	Parita Jain,Anupam, Puneet Kumar Aggarwal, Kshirja Makar, Vineet Shrivastav, Seema Maitrey	Machine Learning for Web Development: A Fusion
7	64	Sanjay Madan, Shivani Arya, Divya Bansal, Sanjeev Sofat	Bot Attack Detection using various Machine Learning Algorithms
8	110	Surbhi Khurana, Amita Dev	Present scenario of emotions based speech systems in India

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Technical Session: 02 **Date and Time: 19/11/2020, 03:15 PM – 04:45 PM**

S No	Paperid	Authors	Title
1	18	Monika Parmar, Harsimran Jit Kaur and Rinku Saini	Blockchain Based Secured Data transmission of IoT Sensors using ThingSpeak
2	22	Ravi Choudhary, J N Rai and Yogendra Arya	Impact of Energy storage device on the performance of AGC using ALO tuned PID controller
3	24	Shweta Singh and Arun Kumar Tripathi	The Instrument to Measure Happiness at workplace
4	30	Tanishqa Chaudhary, Kshitija Patil, Abhishek Katore, Mohandas Pawar, Sagar Jaikar	IoT Based Smart Cyber Sealing System
5	33	Vanyaa Gupta, Neha Bansal, Arun Sharma, Kaustubh Mani	A Novel Approach For Summarizing Legal Judgements Using Graph
6	39	M. Nagaraju and Priyanka Chawla	Deep CNN Architectures for Learning Image Classification: A Systematic Review, Taxonomy and Open Challenges
7	59	Pushpikka Udawat, Jogendra Singh and G.S. Ameta	The Quest for crop improvement in the era of artificial intelligence, machine learning and other cognitive sciences
8	111	Pooja Gambhir, Amita Dev	A run-through: Text independent Speaker Identification using Deep Learning

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Technical Session: 03 **Date and Time: 19/11/2020, 03:15 PM – 04:45 PM**

Sr. No.	Paperid	Authors	Title
1	6	Ashwin Siddharth, Yogesh B R, Rutwik B and Jayashree Rangareddy	Summarisation of Video Lectures
2	28	Mudit Saxena and M. Gangadharappa	Artificial Intelligence Approach in Video Summarization
3	31	Basanta Kumar Swain, Sanghamitra Mohanty and Dillip Ranjan Nayak	Extractive Summarization of Recorded Odia Spoken Feedback
4	67	Ms. Alina Banerjee, Ravindar M and Ela Kumar	Frame Change Detection in Videos – Challenges and Research Directions
5	72	Renuka Arora, Sunny Arora	Speech Impairment Recognition using XG Boost Classifier
6	97	Jaspreet Kaur Sandhu, Amitoj Singh	Research Insight of Indian Tonal Languages: A Review
7	99	Mohammed Salah Al-Radhi, Tamás Gábor Csapó, and Géza Németh	Advances is Speech Vocoding for Text-to-Speech with Continuous Parameters
8	100	J Betina Antony, N R Rejin Paul and G. S. Mahalakshmi	Applying Entity Recognition and Verb Role Labelling for Information Extraction of Tamil Biomedicine
9	104	Joyanta Basu, Theodore Raphael Hrangkhawl, Tapan Kumar Basu , Swanirbhar Majumder	Identification of Two Tribal Languages of India: An Experimental Study
10	113	Shivani Singh and Sandhya Tarar	Mental Illness Diagnosis from Social Network Data using Effective Machine Learning Technique

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Technical Session: 04 Date and Time: 20/11/2020, 11:00 AM – 12:30 PM

S. No	Paperid	Authors	Title
1	17	Ritu Garg and Om Prakash Sangwan	Hybrid Classifier for Brain Tumor Detection and Classification
2	27	Rituparna Ghosh	Parametric Study of Through Transmission Laser Welding with Teaching Learning Based Optimization
3	63	Mandeep Kaur, Rekha AG & Resmi AG	Research Landscape of Artificial Intelligence in Human Resource Management: A Bibliometric Overview
4	66	Puja Priya, Dr.Gurjit kaur, Rajesh Kumar	An efficient Class F PA with SSL/SIL based matching network for Body Centric Wireless Transceiver
5	68	Harsha Deivalakshmi Thirunavukkarasu, Vriti Sachdeva, Kshitij Kumar Sinha	Envisaging the future homes with 'Human-Building Interaction'
6	75	Nitin Yadav, Satinder Bal Gupta, Raj Kumar Yadav	Comparative Analysis of First Order Optimization Algorithms
7	83	Pradeep Kumar Juneja, Neha Belwal, Sandeep Kumar Sunori, Farha Khan, Abhinav Sharma, Gaurav Pundhir	A Review on Application of Artificial Intelligence Techniques in Control of Industrial Processes
8	89	B. Balaji Bhanu, Mohammed Ali Hussain, Mahmood Ali Mirza	Crop Monitoring System for Effective Prediction of Agricultural Analytics in Indian Agriculture using WSN
9	109	Rashmi_Kumaria.Nitwane, V. D. Bhagile, R. R. Deshmukh	Trend Analysis of Meteorological Index SPI Using Statistical And Machine Learning Models Over the Region of Marathwada.

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Technical Session: 05 **Date and Time: 20/11/2020, 02:15 PM - 03:30 PM**

S. No	Paperid	Authors	Title
1	58	Pramod Singh, Rekha Aggarwal	An insight into Reconfigurable Antenna Design
2	65	Sunita Kumari Chauraisa, S.R.N Reddy	Optimized Xgboost Algorithm using Agglomerative Clustering for Effective User Context Identification
3	70	Youddha Beer Singh, Shivani Goel	1D CNN Based Approach for Speech Emotion Recognition using MFCC Features
4	71	Mahima Kataria, Prashansa Gupta, Shivani Singh, Vani Bansal, Ravinder. M	Review on Text Detection and Recognition in Images
5	74	Kanika Gupta, Arun Sharma, A.K. Mohapatra	Comparative Analysis of Machine Learning Algorithms on Gender Classification using Hindi Speech Data
6	80	Usha Mittal, Sayantan Kar, Priyanka Chawla	COVID-19 detection through Mamdani- Based Fuzzy Inference System
7	82	Shalini Garg, Aarti Sehgal, Snehlata Sangawan	Assistive Technology is a Boon or Bane: A Case of Persons with Disabilities
8	86	Pushpanjali Kumari, S R N Reddy, Professor, Richa Yadav	Sensor Data Fusion Using Machine Learning Techniques in Indoor Occupancy Detection
9	96	Neelam Rawat, Prashant Agrawal, Arun Kumar Tripathi, Yashpal Singh	Covid'19 virus life progress span by using Machine Learning Algorithms and Time Series Methods
10	115	Archana Singh, Sarika Sharma	Sustainable Development through adoption of digitization towards functioning of Self Help Groups

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Technical Session: 06 **Date and Time: 20/11/2020, 03:30 PM – 04:45 PM**

S.No.	Paperid	Authors	Title
1	25	Laxmi Ahuja, Ajay Rana, Prina Todi	Security and Vulnerability Issues in NoSQL
2	61	Ms. Divanshi Priyadarshni Wangoo, S.R.N Reddy	Artificial Intelligence Applications and Techniques in Interactive and Adaptive Smart Learning Environments
3	73	Pankaj Kumar and Sanjib Kumar Sahu	SIM-BERT: Speech Intelligence model using NLP-BERT with improved accuracy
4	81	Manisha Yadav, Lavisha Malik, Lavanya Gaur, Disha Goyal, Ravinder M.	A Literature Review on Virtual Assistant for Visually Impaired
5	92	Rajni Sharma, C.S. Lamba, V.S. Rathore	Congestion Control Mechanisms To Avoid Congestion In VANET: A Comparative Review
6	98	Ravi Yadav, Rajkumar Yadav and Satinder Bal Gupta	Comparative Study of Various Stable and Unstable Sorting Algorithms
7	103	Kanu Goel and Shalini Batra	Prediction Analysis of Forecasting Applications with Concept Drifting Distributions
8	108	Muneer. VK, Ramseena N., Rizwana Kallooravi Thandil, Mohamed Basheer KP	A Hybrid Cardiovascular Disease Prediction System Using Machine Learning Algorithms
9	114	Shreya Virani, Sonica Rautela, Sarika Sharma	Financial Inclusion via Fintech: A Conceptual Framework for Digitalizing the Banking Landscape of Rural India

Message from the General Chair

It gives me immense pleasure to welcome all the participants, delegates, keynote speakers, resource persons for Second International Conference on "Artificial Intelligence and Speech Technology" AIST-2020 to be held at Indira Gandhi Delhi Technical University for Women, Kashmere Gate, Delhi on 19th and 20th November 2020. The first version of the Conference was a great success with the participation of experts from Japan, Hungary, Czech Republic, Myanmar and almost all corner of India.

The 2nd version of AIST has scaled up with more number of quality papers from wider reach of academicians, professionals and researchers all over the world. The technology giant IBM has agreed to provide the technical support for the Conference. Due to the pandemic situation all around the world, the Conference is being organized in an online mode which has provided us the opportunity to interact with more number of International Keynote Speakers and to learn from these experts.

The aim of the Conference is to serve as a forum for discussions on the state-of-the-art research, development and implementations of Artificial Intelligence and Speech Technology. AIST-2020 is dedicated to cutting edge research that addresses scientific needs of academic researchers and industrial professionals to explore new horizons of knowledge related to Artificial Intelligence and Speech Technology. Researchers from across the world are presenting their research revealing latest and relevant research findings on almost all the aspects of Artificial Intelligence and Speech Technology.

As academicians, the responsibility to nurture complete professionals lies with us. This necessitates the knowledge of latest trends in fast changing technology. Conferences bring together people from all different geographical areas who share a common discipline or field and is found effective to extend one's knowledge.

I, on behalf of the Steering Committee, would like to express my sincere thanks and appreciation to the world-renowned Professors and prominent Researchers for having agreed to deliver the keynote session and share their knowledge during the Conference.

I am sure that this colloquy of researchers and experts from academia and industry would greatly benefit researchers, students and faculty. Young scientists and researchers will find the contents of the proceedings helpful to set roadmaps for their future endeavours.

I wish the conference a great success.

Dr. (Mrs.) Amita Dev
Vice-Chancellor, IGDTUW
General Chair, AIST-2020

Message from the TPC Chair

It is the matter of great pleasure and happiness to see that Indira Gandhi Delhi Technical University for Women, Kashmere Gate, Delhi is organizing its Second International Conference on Artificial Intelligence and Speech Technology (AIST-2020). The objective of the conference is to provide a platform for a profound discussion and presentations on state-of-the-art research, development, innovations and implementations of Artificial Intelligence and Speech Technology by the researchers world-wide.

There has been a tremendous advancement and innovations in Artificial Intelligence which is incomparable to what Artificial Intelligence emerged traditionally. We use Artificial Intelligence many times during a day-often, without even realizing it. Today Artificial Intelligence has greatly enhanced machine learning, Natural Language Processing (NLP) and Deep learning such that they are enabling new developments in Speech Technology like voice response user interactive systems. Looking to its huge hope and dimensions AIST-2020 brings together academics, industrial experts and education leaders from all over the world to discuss an incredibly wide array of topics ranging from Foundation of Artificial Intelligence and machine learning, data mining, Cognitive science to Speech technology, to name a few.

I would like to express my sincere thanks and appreciation to the world-renowned Professors and prominent Researchers for having agreed to deliver the keynote session and share their knowledge during the Conference. My warmest thanks go to the organizing committee colleagues including the tutorial program co-chairs, the technical program committee members, the paper reviewers for their invaluable work in shaping the technical program and not the least all the authors who kindly submitted their papers to AIST-2020.

In summary, no doubt you all will appreciate the unique combination of cutting-edge technical program, with wonderful organization of the conference, Enjoy meetings with friends and colleagues as well as impromptu discussions with eminent speakers. I look forward to seeing everyone in IGDTUW, Delhi India

Prof. S.S. Agrawal
Emeritus Scientist, CSIR
Technical Program Chair, AIST-2020

Message from the Conference Secretary

I take this opportunity to welcome you all to the 2nd International Conference on Artificial Intelligence and Speech Technology i.e. AIST-2020, to be held at Indira Gandhi Delhi Technical University for Women, Kashmere Gate, Delhi during 19-20th November 2020. This conference will have an amalgam of researchers from the fields of Artificial Intelligence and Speech Technology.

The objective of the conference is to provide a forum for researchers worldwide to unveil their latest work in Artificial Intelligence and innovations in Speech Technology. Topics covered in this conference include fundamentals of AI, its tools and applications, Machine Learning, Deep Learning, Soft Computing and Applications, Speech Analysis, Representation and Models, Spoken Language Recognition and Understanding, Affective Speech Recognition, Interpretation and Synthesis, Speech Interface Design and Human Factors Engineering, Speech Emotion Recognition Technologies, Audio-Visual Speech Processing, IoT Security. The conference received more than 119 submissions from all over the globe, out of which the best 54 selected papers will be presented during these two days. The Conference Proceedings will be published by Taylor and Francis as an eBook.

AIST-2020 is an effort of IGDTUW to share knowledge and current research on Artificial Intelligence and its innovation in Speech technology. All the paper submissions have gone through a careful anonymous review process (2 or more reviewers per submission) aided by Technical Program Committee members and Advisory Board.

The AIST-2020 Conference includes prominent Keynote addresses by Prof. Satoshi Nakamura (NAIST, Japan), Prof. Németh Géza (Budapest University of Technology and Economics, Hungary), Dr. Win Pa Pa, UCSY, Myanmar, Dr. S. Umesh, Indian Institute of Technology – Madras, Prof. S.S. Agrawal (Emeritus Scientist, CSIR), Dr. Milan Stehlik, Johannes Kepler University, Austria and Dr. Manish Bhide, Chief Solution Architect, IBM. Also, the Technical Sessions will be chaired by eminent experts from AI and Speech Technologies including Prof. Samudra Vijay, IIT Guwahati, Prof. Anand Nayyar, Duy Tan University, Da Nang, Vietnam, Dr Swaran Lata, Former Sr. Director and Head, TDIL, DeitY, Dr. Karunesh Arora, CDAC, Dr P K Saxena, Pr. Scientific Advisor – Fellow, GoI, Prof. Ashish Seth, Inha University, Tashkent (Uzb), Dr Anu Khosla, Director, Scientific Analysis Group, DRDO (GoI), Dr S K Jain, Chief Forensic Scientist, Min. of Home Affairs, GoI, Dr. Priyanka Chawla, LPU and Dr Ihtiram Khan, Jamia Hamdard University.

I would like to thank everyone who has given his or her time, energy and ideas to assist in organizing this event including all members of organizing committee, Technical Program Committee members and all reviewers and our distinguished keynote speakers who have agreed to address the conference attendees. I also wish to thank all of our sponsors and supporters especially DST (Curie Grant) and IBM who have made this event possible. It is through the collective efforts of these individuals and organizations that we are able to bring this conference a great event!.

Looking for the great success of the Conference.

Prof. Arun Sharma
Conference Secretary, AIST-2020
Prof. and Head – Department of IT
IGDTUW

Chief Guest

Prof. V Ramgopal Rao
Director, IIT Delhi

Prof. V. Ramgopal Rao is currently the Director, IIT Delhi. Before joining IIT Delhi as the Director in April 2016, Dr. Rao served as a P. K. Kelkar Chair Professor for Nanotechnology in the Department of Electrical Engineering and as the Chief Investigator for the Centre of Excellence in Nanoelectronics project at IIT Bombay. Dr. Rao has over 450 research publications in the area of nano-scale devices & Nanoelectronics and is an inventor on 45 patents and patent applications, which include 17 issued US patents. Twelve of his patents have been licensed to industries for commercialization. Prof. Rao is a co-founder of two deep technology startups at IIT Bombay (Nanosniff & Soilsens) which are developing products of relevance to the society. Dr. Rao is a Fellow of IEEE, a Fellow of the Indian National Academy of Engineering, the Indian Academy of Sciences, the National Academy of Sciences, and the Indian National Science Academy.

Prof. Rao's work is recognized with many awards and honors in the country and abroad. He is a recipient of the Shanti Swarup Bhatnagar Prize in Engineering Sciences in 2005 and the Infosys Prize in 2013. Dr. Rao also received the Swarnajayanti Fellowship award from the Department of Science & Technology, IBM Faculty award, Best Research award from the Intel Asia Academic Forum, TechnoMentor award from the Indian Semiconductor Association, DAE-SRC Outstanding Research Investigator award, NASI-Reliance Platinum Jubilee award, J.C.Bose National Fellowship, Prof. C.N.R.Rao National Nanoscience award, VASVIK Award and the Excellence in Research Award from IIT Bombay. Prof. Rao was an Editor for the IEEE Transactions on Electron Devices during 2003-2012 for the CMOS Devices and Technology area and currently serves on the Editorial Advisory Board of ACS Nano Letters, a leading international journal in the area of Nanotechnology. He is a Distinguished Lecturer, IEEE Electron Devices Society and interacts closely with many semiconductor industries both in India and abroad.

Keynote Speakers/Session Chairs

Prof. Satoshi Nakamura, Nara Institute of Science and Technology, Japan

SATOSHI NAKAMURA is Professor of Graduate School of Science and Technology, Nara Institute of Science and Technology, Japan, Project Leader of Tourism Information Analytics Team of RIKEN, Center for Advanced Intelligence Project AIP, Honorary Professor of Karlsruhe Institute of Technology, Germany, and ATR Fellow. He received his B.S. from Kyoto Institute of Technology in 1981 and Ph.D. from Kyoto University in 1992. He was Associate Professor of Graduate School of Information Science at Nara Institute of Science and Technology in 1994- 2000. He was Director of ATR Spoken Language Communication Research Laboratories in 2000-2008 and Vice president of ATR in 2007-2008. He was Director-General of Keihanna Research Laboratories and the Executive Director of Knowledge-Creating Communication Research Center, National Institute of Information and Communications Technology, Japan in 2009- 2010.

He is currently Director of Augmented Human Communication laboratory and a full professor of Graduate School of Information Science at Nara Institute of Science and Technology. He is interested in modeling and systems of speech-to-speech translation and speech recognition. He is one of the leaders of speech-to-speech translation research and has been serving various speech-to-speech translation research projects in the world including C-STAR, IWSLT, and A-STAR. He received the Yamashita Research Award, Kiyasu Award from the Information Processing Society of Japan, Telecom System Award, AAMT Nagao Award, Docomo Mobile Science Award in 2007, ASJ Award for Distinguished Achievements in Acoustics. He received the Commendation for Science and Technology from the Minister of Education, Science and Technology, and the Commendation for Science and Technology by the Minister of Internal Affair and Communications. He also received the LREC Antonio Zampolli Award 2012. He has been elected Board Member of International Speech Communication Association, ISCA, from 2011 to 2019, IEEE Signal Processing Magazine Editorial Board Member since 2012-2015, IEEE SPS Speech and Language Technical Committee Member since 2013-2016, IEEE Fellow since 2016, and ISCA Fellow since 2020.

Title: Towards Incremental ASR and TTS for Real-time Interaction.

Abstract: To realize real-time human-machine interaction the ASR and TTS need to work with very low latency. We introduced an incremental ASR, in short ISR that produces recognized character outputs by small windows keeping hidden unit information and applying novel attention transfer training. Also, we introduced an incremental TTS that produces speech segments by words or accent phrases. Experimental results also show the proposed incremental ASR and TTS successfully reduced latencies preserving the non-incremental performances.

Prof. S Umesh, IIT-Madras

S. Umesh is a Professor of Electrical Engineering at IIT-Madras. He completed his PhD from the University of Rhode Island, USA and his Post Doctoral Fellowship from the City University of New York. He has also been a visiting researcher at AT&T Research Laboratories, USA; at Machine Intelligence Laboratory Cambridge University Engineering Department, UK and the Department of Computer Science, RWTH-Aachen, Germany. He is a recipient of the AICTE Career Award for Young Teachers in 1997 and the Alexander von Humboldt Research Fellowship in 2004. During his stint at Cambridge University in 2004, he was part of the U.S. DARPA's Effective, Affordable Reusable Speech-to-text (EARS) programme. Similarly in 2005 he was part of the RWTH-Aachen's TC-STAR project for transcription of speech from European Parliament's Plenary Sessions. Between 2010-2016, he led a multi-institution consortium to develop ASR systems in Indian languages in the agriculture domain which was funded by MeiTY. He is currently leading the ASR efforts for the Natural Language Translation Mission managed by the Office of Principal Scientific Adviser of Govt. of India.

Title: Automatic Speech Recognition of NPTEL Lectures using Transformer Framework

Abstract: Transformers (and its variants BERT and GPT) have provided significant improvements in NLP. Recently, many research groups (including ours) have started exploring the use of Transformers in end-to-end Automatic Speech Recognition. End-to-End provides the benefit of open-vocabulary without the need of a good lexicon/dictionary. This also makes adaptation to a new domain easier. In this talk, I will talk about our experiences in building ASR for NPTEL Technical Lectures using a transformer framework. NPTEL lectures are in Indian English and are delivered in conversational-style with lots of disfluencies and ill-formed and incomplete sentences. Further, there are lots of technical terms for which a general-purpose English ASR system will not work well. Hence, this is one of the most challenging ASR tasks, and we will compare our ASR system with paid Google and Microsoft ASR APIs.

Prof. Németh Géza, Budapest University of Technology and Economics, Hungary

Géza Németh is an Associate Professor with habilitation and the Head of the Speech Communications and Smart Interactions Labs of the Department of Telecommunications and Media Informatics at the Budapest University of Technology and Economics (BME TMIT SmartLab). He has led several Hungarian and EU funded R&D projects as a pioneer of speech technology and smart platform (phone, TV, robot, watch, etc.) applications. His outstanding work was honoured by several awards, including the Officers Cross of the Order of Merit of the Hungarian Republic. He has 180+ scientific publications and four patents. Currently he is the Hungarian National Contact Point for the European AI On-Demand Platform (AI4EU project) and serves as the International Relations Workgroup Leader of the Hungarian AI Coalition.

Title: Challenges and Solutions in Speech Information Systems

Abstract: In the talk an overview will be given about the challenges we face in the multilingual and multicultural globalized world of our time in the domain of speech information systems. Promising approaches to solutions will also be described.

Dr. Milan Stehlik, Johannes Kepler University, Austria

Prof. Stehlik has been at the JKU Institute of Applied Statistics since 2006 and earned his post-doctorate lecture qualification in Statistics in 2011. In 2015, he had a professorship at the Universidad de Valparaiso, Chile. He cooperates with numerous universities around the world, including Oxford University and Stanford University, and is involved in several consortia for large international research projects. He serves as editor-in-chief of The Open Statistics & Probability Journal (Bentham Open), Associate Editor in Europe for Neural Computing and Applications (Springer), and Associate Editor for the Journal of Applied Statistics (Taylor and Francis).

Prof. Stehlik's research focuses on the development of multi-criterial decisions, particularly when it comes to make decisions regarding cancer treatment, financial decisions, and ecosystems.

Title: Artificial Intelligence and Statistical Learning for COVID-19 research: steps towards REDACS methodology

Prof Win Pa Pa, NLP Lab, UCSY, Myanmar

Prof Win Pa Pa is working as an Professor and have been doing research at Natural Language Processing lab of UCSY since August, 2009She got B.Sc.(Maths) degree from Mandalay University, M.I.Sc (Master of Information Science) and PhD(Information Technology) from University of Computer Studies, Yangon, Myanmar in 2001, 2004 and 2009.. Her Ph.D thesis was on "Myanmar Word Segmentation" which is essential for Myanmar NLP and she is still doing research on Word Segmentation for accuracy. Her other research interests are Machine Translation and Speech synthesis. She has been supervising Master and Ph.D thesis on Natural language processing such as Information Retrieval, Morphological Analysis, Part of Speech Tagging, Parsing, and Automatic Speech Recognition. She took part in the project of ASEAN MT, the machine translation project for South East Asian languages.

She also participated in the projects of Myanmar Automatic Speech Recognition and HMM Based Myanmar Speech Synthesis (Text to Speech) that were the research collaboration between NICT, Japan and UCSY. She went to Universal Communication Research Institute, NICT, Kyoto, Japan as a visiting Researcher from June 2014 to March 2015.

Title: Application of speech recognition and speech synthesis

Abstract: Applications of speech recognition and speech synthesis have been developed in many different areas for many languages including minority and low-resourced languages like Myanmar. Myanmar language has been involved lately in speech processing and improving the quality by using state-of-the-art techniques and incorporating the linguistics information.

Prof. Ashish Seth, Inha University, Tashkent

Prof. Ashish Seth is a Professor at School of Global Convergence Studies, Inha University, South Korea and is presently deputed to Inha University Tashkent, Uzbekistan. He is also a visiting faculty at TSI, Riga, Latvia. His research interests include Service Oriented Architecture, Optimal Computing, Intelligent Systems and Blockchain Technologies. He finds interest in reading and writing articles on emerging technologies. He is PhD (Computer Science) in the area of Information Systems from Punjabi University, Patiala, Punjab, INDIA. He has published more than 40 research papers in indexed journals. He has authored 4 Books and several book Chapters. He also edited two Books and one indexed Journal.

Dr. Manish Bhide is the Chief Architect of IBM Watson OpenScale

Dr. Manish Bhide is the Chief Architect of IBM Watson OpenScale - an offering which helps build trust and transparency in AI. He has been with IBM for more than 18 years and has worked across different parts of the organization, including IBM Research and IBM Watson. Manish has a passion for innovation and is credited with conceptualizing several technological innovations which have made an impact on IBM's products and offerings. Additionally, he is a prolific inventor and has filed more than 80 patents in fields ranging from trusted AI, data management, policies for autonomic computing, information retrieval etc.

He has published more than 25 research papers in Conferences and Journals including IEEE Transactions on Computers, SIGMOD, ICDE, ICAC, ESORICS etc. in the areas of data management, policies, access control etc. He holds a PhD in Computer Sc. where his thesis dealt with applying Machine Learning to solve problems of streaming data.

Title: Trust and Transparency in AI

Dr. (Mrs) Amita Dev, Vice Chancellor, IGDTUW

Dr. Amita Dev is the First Pro-Vice Chancellor and Second Vice-Chancellor of Indira Gandhi Delhi Technical University for Women, Delhi. She is a true leader, excellent administrator and passionate and very active researcher. She is doing extensive research in the field of Artificial Neural Networks, Speech Processing, Opportunistic Networks, Speech Recognition Systems, MANETS, Advanced Computer Networks, Data Mining etc. Having vast experience of more than 33 years, she has unparallel track record of Administration, quality Teaching, Innovation and Research. She has published 80+ research papers in Renowned International and National Journals and Conference Proceedings. She is an avid speaker and a great motivator and has been invited at various national and international forums.

In recognition to her valuable and worthy research contributions, she has been conferred with many awards like “National Level AICTE Young Teacher Career Award” with Research Grant for pursuing Advanced Research in the area of “Hindi Speech Recognition Using Connectionist Model”, “State Level Best Teacher Award” awarded by GNCT of Delhi, “National Level Best Engineering Teacher Award” by ISTE for significant contribution in the field of Research and Technology, “Raja Ram Babu Patil National Level Award” by Indian Society for Technical Education, “National Level ECONS Education Excellence Award” for significant contribution for Education and Academic Excellence, “Vittiya Saksharta Abhiyan Award” by the Hon’ble Minister for HRD, GoI for spreading Digital Literacy and numerous Appreciation letters have been received from Senior Officials of Delhi Government for the Exemplary Performance, Dedication and Devotion towards the work/duty and for Outstanding Contribution in the field of Technical Education. She is Senior Member, IEEE, Fellow IETE, Life Member ISTE.

Under her able leadership and guidance, IGDTUW has achieved several milestones in a short span of approximately two years. The University secured 2nd rank in the category of Higher Educational Institutions Exclusively for Women and in Band ‘A’ overall in the award ceremony of Atal Ranking of Institutions on Innovation Achievements (ARIIA) Rankings 2020. Also, because of her sincere efforts and persuasion towards excellence, University has been ranked 21st from Entrepreneurial Spirit and 77th under Global Top 100 Innovative Universities by World University Ranking Impact (WURI). Under her mentorship, University has earned the Notable Mention Award from AICTE. Also, a whopping grant of Rs. 363 Lakhs is received from DST for consolidation of University Research and Excellence. University has been bestowed with E-Lead Institute for e-learning Excellence for Academic Digitization and Diamond Rating from QS I-Gauge. Recently, University was conferred Shrimati Sushma Swaraj "STREE SHAKTI SAMMAN" due to its vision and commitment.

Prof S.S. Agrawal, Emeritus Scientist, CSIR

Dr. Shyam Sunder Agrawal is a World-renowned scientist in the area of Acoustic Speech and Communication. He obtained Ph.D. in 1970 from AMU, Aligarh, India. Having research experience of about 45 years first as a Scientist at the CEERI, Pilani and subsequently as Emeritus Scientist of CSIR and then as an Advisor to CDAC, Noida. He has worked as Guest Researcher at MIT, Cambridge and UCLA in U.S.A. and visited many universities and research institutions in USA, UK, France, Germany, Sweden, Italy, Japan and other Asian countries. His major areas of interest are Speech Perception, Speech Synthesis, Speech/ Speaker recognition and Development of Speech Data Bases in Indian Languages. Dr Agrawal has published/presented about 200 papers in National / International Journals and Conferences.

He has received a large no. of Hons. and Awards. Some of these include Sir C.V. Raman Award by Acoustical Society of India, Internationally Eminent Acoustician Award and Gold Medal from Acoustic Foundation and Acoustic Society of America, Honored to deliver Several memorial lectures such as B.D. Chaudhuri Memorial lecture, M. S. Narayanan Memorial lecture, Rais Ahmed Memorial lecture, Best project Awards by CEERI, Achut Menon Award and many other citations. He was awarded Senior Fulbright Fellowship, U.N.D.P Fellowships and Sr. East-West Centre Fellowship. He is a Distinguished Fellow of IETE, and fellow of CSI, ASI, ISPhS and other professional societies. He has been President of the Acoustical Society of India and the Board Member of International Commission on Acoustics, Vice President of ISPhS (USA), Vice-President and Chairman of BOE,ICC, ADEC and ELAN of IETE. He is also Country representative of O-COCOSDA, U-Star consortium & member of Indo-Japan Forum of NICT. He is currently working as Director General of KIIT Group of Institution and steering their Academic & Research programs in Institutions of Higher Learning and engaged in several national and international collaborative research projects and Advisor to various National and International Institutions.

Prof. K Samudravijaya, IIT Guwahati

Prof. Samudravijaya is currently visiting faculty at Centre for Linguistic Science and Technology, IIT Guwahati. He has worked as Scientific Officer at TIFR Mumbai, Project Leader at Speaker verification lab, Aum Systems Inc., USA, and Visiting Scientist at Carnegie Mellon University, Pittsburgh, USA. His core area of research is Speech Technology. He has been awarded several prestigious awards including Prof. Rais Ahmed Memorial Lecture Award(2008), Sir C V Raman Award, Acoustic Society of India(2003), Indian Phonetic Society Lecture Award (2002), UNDP Fellowship for research at CMU, Pittsburgh (1988), Best Ph.D. Thesis Award(1986) and several others. He has worked extensively on various projects from government agencies including DeitY, DIT, UNDP and others. He has published approx. 100 papers in reputed Journals and conferences and travelled extensively in India and abroad to deliver Keynote addresses and expert talks.

Dr. Swaran Lata, Retd. Head, TDIL, Ministry of Electronics and IT, GoI

Dr. Swaran Lata worked as Scientist 'G' and Head, Technology Development for Indian Languages (TDIL) Program at Ministry of Electronics and IT. She provided thought leadership in the area of language technology R&D, steering of major multi-institutional consortium projects in the areas of NLP and Speech Processing using AI techniques. Represented Government of India in International Standardization Organisations viz. ISO, Unicode Consortium, World wide Web Consortium. She was also invited as Keynote speaker in various Language Technology Conferences in Europe besides India. TDIL Data Centre was conceptualized by her which created visibility of Indian Language Technology Initiatives across India as well as Globe. She is MTech in Computer Technology from IIT, Delhi and Ph.D. in Acoustics-Phonetics from JNU.
Her research area is Pronunciation Lexicon Specification for Punjabi Langauge within W3C Framework. She has published many Research Papers and also won many Awards for her stellar contributions in the field of Language Technology.

Karunesh Kumar Arora, Sr. Director, CDAC, Noida

Karunesh Kumar Arora is working as Senior Director & Group Coordinator, Speech & Natural Language Processing Group of Centre for Development of Advanced Computing (CDAC), Noida. Having vast experience of research & development in the field and have completed / handled various major projects including Consortium projects - Development of Indian Languages to Indian Languages Machine Translation Systems, Development of Cross Lingual Information Access for Indian languages, English-Indian Language Machine Translation System based on Angla Bharati approach, all sponsored by Technology Development in Indian Languages (TDIL), Ministry of Electronics & Information Technology (MeitY), Govt. of India, U-STAR – Universal Speech to Speech Translation (International Consortium project) led by NICT, Japan. Looking after developments pertaining to Hindi language along with several others.
He has received renowned IMC Information Technology Excellence Award, Manthan Award & Skoch Project of Merit award for various projects. He has also worked as Invited Researcher at Advanced Technical Research Institute International (ATR now NICT), Japan. He has published more than 25 research papers in International, national conferences & journals. He has contributed chapters to International and national books. He has been Co-editor of Proceedings of International Conference on Natural Language Processing. He is the member of various national and international committees, and Project Review & Steering Groups. He has delivered various invited talks, invited expert for interview boards and session chair in various conferences.

Dr. Anand Nayyar, Graduate School, Duy Tan University, Da Nang, Viet Nam.

Dr. Anand Nayyar is working as Professor in Graduate School, Duy Tan University, Da Nang, Viet Nam. He is currently working in the area of Machine Learning, Deep Learning, Smart Cities, High Performance Computing, Data Science Analytics, and Computational Intelligence. He has published more than 350 research papers and 25 books. He also has 2 patents to his credit in the area of Speech Processing and IoT. He is on the Editorial Board of various reputed journals. He has travelled extensively for delivering Invited Talks/Keynote Addresses for various reputed Conferences.

Hybrid Classifier for Brain Tumor Detection and Classification

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To improve the patient survival and treatment outcomes, early diagnosis of brain tumors is an essential task. It is a difficult task to evaluate the magnetic resonance imaging (MRI) images manually. Thus, there is a strong need for digital methods for tumor diagnosis with better accuracy. However, it is still a very challenging task in assessing their shape, volume, boundaries, tumor detection, size, segmentation, and classification. In this project, we propose a hybrid method using Random Forest (RF), KNN, and Decision Tree (DT) (RF+KNN+DT) based on Majority Voting Method. It aims to calculate the area of the tumor region and classify brain tumors as benign and malignant. In the beginning, segmentation is done by using Otsu's Threshold method. Feature Extracted by Stationary Wavelet Transform (SWT), Principle Component Analysis (PCA), and Gray Level Co-occurrence Matrix (GLCM) – 13 features. Overall, our proposed method is novel and gives good accuracy of 97.305%.

Classification Approaches for Automatic Speech Recognition System

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Recognition of Speech is now becoming more widespread. Different applications that are knowledgeable of interactive expression are present on the market. For those devices in which handwriting is complicated, speaking recognition systems are sensible options. With growing specifications for embedded device and modern embedded technologies, the Speech Recognition Systems (SRS) must also be available. Mainly the latest expressions use Hidden Markov Models (HMMs) methods to decide how well every condition of each HMM fit in with a picture or effective allocation of coefficient frames that reflect acoustical inputs, to interact with the spatial uncertainty of language and Gaussian Mixture Models (GMMs). Alternatively, the use of a neural feed method that uses many structures of coefficients as inputs and creates later chances as output in relation to HMM states. Deep Neural Networks(DNN) with many input layer which are equipped with modern techniques have already shown that GMMs are more successful on a range of voice recognition criteria, with many input nodes. DNNs which have been equipped by new techniques to surpass GMMs on a number of speech recognition criteria, often by a significant margin. This paper offers an analysis of development and reflects the common perspectives of four study groups who have recently found excellence in the use of deep neural networks in speech recognition for acoustic modeling.

Early Detection of PCOD using Machine Learning Techniques

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Polycystic Ovary Disease (PCOD) is a common disorder among women with no exact cure known to date. It shows various symptoms and may even contribute to long term health problems. It is largely ignored, due to a lack of awareness and usually detected when women try for conception. To confirm the diagnosis various hormonal blood tests along with ultrasound scan is required which leads to multiple trips to well-equipped hospitals in urban areas. Currently, the whole process is expensive for people with a poor background, especially for people living in rural areas. Our contribution is to predict PCOD as accurately as possible, thus we used both Tabular data consisting of metabolic and clinical parameters and Ultrasound scan images of patients for prediction. We found CatBoost as the best performing model with F1-score **88.68%** for Tabular data and YOLOv2 with F1-score of **85.86%** for Ultrasound scan images. A Related contribution is to create an application which can be used by doctors to upload the Tabular data and Ultrasound scan images to predict PCOD and save the patients data for future use.

Application of Real-Time Object Detection Techniques for Bird Detection

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In this paper, we address the possibility of bird detection, specifically the Indian house sparrow, which is on the verge of extinction using real time object detection algorithms. Using a dataset containing the diverse images of house sparrows in various bird habitats, we seek to develop a platform for easy bird detection. In addition, house sparrow images have also been used to compare the various object detection models to identify the prerequisites towards building real-time bird detection applications. We calibrated recent object detection models such as Tiny- You Only Look Once (YUOLO), YUOLO-v2, YUOLO-v3, and MaskR-CNN for house sparrow detection, and the model performances were assessed based on comparison of their computation speed and average accuracy of predictions. Results revealYUOLO-v3 to be the most accurate, while Tiny-YUOLO can reasonably detect sparrows when the processing hardware and size are a constraint. The results demonstrated that deep learning based detection methods are relatively suitable for house sparrow detection in different environments.

Machine Learning Algorithms used for Detection of Prostate Cancer

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Prostate cancer (PCa) occurs in the prostate that generates the seminal fluid for men. This cancer is the second most diagnosed disease of men throughout the world. 28% of cancers in men result in the prostate, making PCa and its identification an essential focus in cancer research. PCa symptoms are with troubled urination, identified through blood semen, bone pain. The diagnosis of Prostate Specific Antigen (PSA) and the usage of pathological and demographic factors such as Gleason score, clinical stage, age, etc. remain the trending standard in the forecasting and decision-making of PCa treatment. The improper symptoms of PCa are a challenge to identify at an early stage. The study article is aimed at understanding the current trends in detection with more focus on identifying areas to improve results in the detection of PCa. Hence, developing effective diagnostic methods for PCa is very significant and has a critical clinical effect. CAD-based methods are reviewed to predict PCa and to improve treatment and enhance patients' chances of survival. Prostate segmentation and classification is a difficult process, and the difficulties fundamentally vary with one imaging methodology then onto the next. For segmentation and classification, deep learning algorithms, specifically convolutional networks, have quickly become an optional technique for medical image analysis. In this article different algorithm researches used for the detection of PCa is analyzed. Most of the researches are done in machine learning-based and deep learning-based approaches. On the basis of results obtained from the analysis of these researches, deep learning-based techniques play a vital and promising role in the detection of PCa. Most of the techniques are based on computer-aided detection (CAD) systems, which follow preprocessing, segmentation, feature extraction, and classification processes, which yield efficient results in detecting PCa. As a conclusion from the analysis of some recent works, deep learning-based techniques are adequate for the detection of PCa.

How Training of sigmoidal FFANN effected by Weight initialization

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Initialization of weight is very essential and important for training. The weights can be initialized either zero, random, Nyugen-Widrow and many other methods of weight initialization. In this paper these methods are used for comparison with the results obtained by using proposed algorithms. The inputs considered are five different approximation functions with variable inputs, single hidden layer and one output. The algorithm used is gradient descent back propagation algorithm. Coding is done using MATLAB R2013a 8.1. The results obtained are very good after analysis. Graphical representations are also shown in this paper.

Machine Learning for Web Development: A Fusion

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In the resent scenario it has been seen that the definition of JavaScript (JS) a web development scripting language also seems to be changing with time. Earlier it was used for making dynamic web pages, interactive use of map, animations, but the development in the recent past has given this field a new shape. The development, enhancement and upgradation of various JavaScript libraries for Machine Learning (ML) and Artificial Intelligence (AI) have made the industry to think about the potential of JS. The combination of JS and ML has fed the huge JavaScript community with new opportunities to enter the world of modern ML, be it a developer from front-end or back -end. The research paper, discusses about the various JavaScript libraries which are capable of creating client-side machine learning possible through the browser. The libraries do show the same type of concerns but there is always a continuous improvement in the field. Machine learning has been a very crucial part of our society be it recommending a song based on user preference, understanding the health issues of a person, speech recognition and lot more. It has been a part of our lifestyle and its constant development and enhancement is required. The huge community of JS if integrated with that of ML can do wonders to solve problems even at a better pace and with more accuracy. This may serve as a new frontier for modern machine learning and browser can serve as the new ML platforms.

Impact of energy storage device on the performance of AGC using ALO tuned PID Controller

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This paper investigates a new approach using Ant Lion Optimization algorithm for designing AGC of single area power system. The results of time response using a new algorithm is compared for PI and PID controllers. The effect of GRC and Reheater is considered in the simulation results using Matlab software. Contribution of energy storage device to the power system has been analysed. ALO tuned PID controller reveals better simulation results compared with PI controller. The impact of energy storage device gives improved results for the time response.

The Instrument to Measure Happiness at workplace

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In the past decades, new era has emerged of working environment with various private and public authorities. More than thousands, companies and government authorities have emerged. From this era, numbers of technological and infrastructural innovations have also been done on large scales, which brought a new trend to working environment including more facilities for an individual. At times, an individual's emotional state of mind also changes in meeting new deeds and needs. People today more focuses on working like machines, irrespective of meeting their emotionally stability and healthy lifestyle. This leads to an increment in mental disorder, such as depression, irritability, aggression, etc., and this makes an individual unhappy. This paper is based on a survey that relies more on discussing the list of factors that triggers a behavioral change, and are mostly encountered while working in any organization. An unambiguous and detailed survey will allow various people and researchers to better determine appropriate ways to attain mental stability through happiness; and will contribute in some way to lead lives towards their own sustainability and healthy lifestyle.

Bot Attack Detection using various Machine Learning Algorithms

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With the significant increase of Internet-of-Things devices globally, the cyber-attacks increase proportionately on such resource constraint devices, which have less memory and computational resources. The most of the attacks on the IoT infrastructure are botnet-based attacks. To develop automated mitigation solution, there is a need to develop methods for detection of bot attack in early stage of infection. In this paper, proposed a machine learning based method for detection of bot attack through network flow data. The efficient feature selection and evaluation method is implemented for development of scalable model with high accuracy. The various machine learning algorithms used to train the detection model and achieves around 95% of accuracy for detection of bot attack.

Blockchain Based Secured Data transmission of IoT Sensors using ThingSpeak

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The Internet of Things (IoT) is the next paradigm in the communication information age. Through using IoT, smart devices can be activated to automatically build, collect, and share the data. Existing and potential IoT technologies brings additional consumers' degree of comfort, productivity and functionality. So, for this, it needs high data protection, anonymity, and restoration from breaches to be able to incorporate such an environment. Blockchain, a distributed ledger technology, capable of maintaining data privacy in a decentralized system, is widely implemented in various fields especially in the field of IoT. Blockchain has recently been gaining recognition because of its conjunction with the Internet of Things (IoT) technology. Therefore, in this paper, we analyzed the various security threats in IoT architecture and its possible Blockchain solution is presented. The core functionality of our system is to monitor the real -time values of Humidity and temperature of remote location through Internet after securing it using blockchain based technology. The live values of Humidity, temperature can be seen through the channels of ThingSpeak Cloud. We can easily get any malicious activity in the infrastructure as with the help of Blockchain, Secured Hash Algorithm can be applied on each block and changing something inside a block will change its hash value. So, our paper aims at Secured data transmission by storing sensor's data in the blockchain and transmitting the blocks onto the cloud. At last we examine the challenges and future scope for research in the protection safeguarding of blockchain-based IoT frameworks.

Text independent Indian Speaker Identification using Deep Learning

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Speaker identification (SI) is a task of determining an unknown speaker's identity which is a 1: N match where the voice of speaker is compared against multiple templates. Speaker identification is categorized under speaker recognition which can be implemented covertly without the user's knowledge to identify the speakers in discussion, designing automated alert systems of speaker changes and many more areas of applications. Empirical solutions for speaker identification are often subject to noise and speaker's disguised voice and remains one of the challenging fields of research in the speech-processing applications. The study of text-independent speaker identification under noise conditions is presented in this paper with emphasis on an overview of the state-of-an-art methods of deep learning. The review tries to address the challenges and help in identification of research questions which are at the forefront of this vast and challenging field.

IoT Based Smart Cyber Sealing System

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The IoT (Internet of Things) is now a vast part of our life. This is manifested by many connected devices and is used in overly smart building applications, smart transport networks, smart grid, etc. IoT security is becoming crucial with the rapid growth of IoT devices. By analyzing Internet-of-Things (IoT) visions, we are designing various IOT devices for rising everyday life. Since safety is essential to the IoT world, we prefer to investigate IoT safety by examining intelligent lock safety. This paper aims to help build the Internet of Things (IoT) framework in smart sealing security systems. Railway sales revenue assets are wagons (SLRs / VPUs). Although railway locomotives and coaches were modernized in the 90's, cars still use the technology of the 80's. It is unattainable to load our lined and open wagons on the far side 64 tones, except with bound heavy commodities. The sealing system of the wagons is very crude, involves much workforce, does not provide complete security from crime incidents, and is proven to be a human error, which makes the system ineffective. To improve the security problems, proposed IoT Smart Sealing system, providing an alert message and geotagging sealing arrangement which contains detailed information of the commodity, consignment details, and mailing address. This information, once fed into the system at the sender's address, is stored into the system and should be accessible to all the control rooms of the divisions along with the route of travel. This improves traceability error-free because it reduces workforce and also provides a better security monitoring system.

A Novel Approach for Summarizing Legal Judgments Using Graph

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These days internet has been the primary source for all the information. It is needless to mention the amount of information available on it which in turn demands for a great amount of effort to process through it and extract the most relevant information from it which then necessitated the need for Automatic Text Summarization that could present a large volume of data into a short yet precise text. This research paper specially emphasises summarization in legal domain as there is a great need for incorporation of an automated system in Indian judiciary that could summarize legal judgements in no time. The paper presents an overview of Automatic Text Summarization and its various techniques subsequently implements a graphical approach to summarize legal documents and finally concludes with some of the future propositions in this research area.

Deep CNN Architectures for Learning Image Classification: A Systematic Review, Taxonomy and Open Challenges

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Object detection and object classification have driven many of the advances in modeling deep learning models. Now-a-days most of the research on deep convolutional neural networks or deep CNNs has been focusing on efficiency while recognizing the objects and their classification in an input image. This process can contribute to the early detection of diseases in humans and plants with a higher level of accuracy. The deep CNN models are the learning approaches in the field of computer vision and machine learning. The present review article has examined some of the existing deep learning techniques that are used to process, detect and classify the input data with eminence on detecting the diseases. First, a review of deep CNN models based on their architectures is provided. Secondly, the study highlighted and explored some of the current implementation challenges and future directions. Finally, the article concluded with the learning capabilities by implementing the deep CNN models while detecting the image objects and their classification accuracy.

An insight into Reconfigurable Antenna Design

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Reconfigurable antennas are capable to change its frequency, polarization or radiation pattern as per the system requirement. In this article a review of various types of reconfigurable antenna using variety of techniques is presented. Mostly reconfiguration can be achieved with the help of various types of switches which can alter shape and size of antenna and hence its different functional parameters (frequency, polarization or axial ratio). Due to reconfigurability, the antenna can be used for multiple applications which reduce size and cost of the system. Such types of antennas found their application in UWB, cognitive radio, MIMO, satellite communication etc.

The Quest for crop improvement in the era of artificial intelligence, machine learning and other cognitive sciences

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As the world population is rising steadily and the global environment is becoming more uncertain with sudden outbursts of clouds, floods, or desertification of land. It becomes very crucial for the agriculture scientific community to find viable ways of crop production via improved varieties and ways of agriculture. The challenges of feeding a growing population can only be met by exploring the hidden potential of cognitive sciences through artificial intelligence and machine learning. The area of cognitive sciences holds most of the key solutions to the current problem of both worlds as well as Indian agriculture. The paradigm shift into the current cultivation practices can be seen through the direct application of AI and ML-powered solutions. The CS added technological advancements have found solutions across a diverse array of sectors. In this article, we will mainly focus on CS mediated AI and ML-powered solutions that can improve the face of the current agricultural landscape and will allow farmers to grow more with less and eventually will double their income. Furthermore, this will improve the standard of living of farmers and improve the global Human Development Index Ranking of different countries, particularly the developing ones.

Summarization of Video Lectures

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In any video lecture there are two important artefacts that need to be taken into consideration, that is, the lecturer's explanation and the lecturer's handwritten information (chalkboard representations). Our work mainly focuses on these two aspects and tries to extract the best out of these two artefacts. We have designed the best methods to extract the maximum information out of the explanations and handwritten representations provided by the lecturer and consolidate them into a PDF to act as useful reference material to be used by scholars and working professionals. We are not transforming anything to a general schema, all the information consolidated in the PDF have the characteristics of the respective lecturer. The objective of our solution mainly is to develop a system which can generate a PDF containing text summary and important chalk board representations of lecture videos which will be helpful for scholars and working professionals taking up online courses or referring to any classroom videos. This would greatly help end users by reducing their time spent on going through complete course before taking up the test for the online course. This paper involves developing a component which would help us extract, format and produce output as close to human understanding as possible and make them more efficient in their academic goals.

Advances is Speech Vocoding for Text-to-Speech with Continuous Parameters

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Vocoders received renewed attention as main components in statistical parametric text-to-speech (TTS) and voice conversion systems. Although there are vocoding methods yield close to natural synthesized speech, their high computational complexity and variable parameters are still considered challenging issues, which present some speech quality degradation. Therefore, this paper presents new techniques in a continuous vocoder, i.e. of which all parameters are continuous and offers a flexible speech analysis and synthesis system. First, a new continuous noise masking is developed based on the phase distortion deviation in order to reduce the perceptual effect of the residual noise and allowing a proper reconstruction of noise characteristics. Second, we addressed the use of sequence-to-sequence modeling based TTS with recurrent neural networks. Bidirectional long short-term memory (LSTM) and gated recurrent unit (GRU) are investigated and applied to model continuous parameters for more natural sounding speech synthesis. Experimental results showed that the proposed model achieves the state-of-the-art speech synthesis performance compared with the other conventional methods.

Artificial Intelligence Approach in Video Summarization

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In today's scenario, the number of videos is increasing exponentially and similarly, the digital processing of videos has shown tremendous growth with the advancement of technology, but faces some typical problem like slow retrieval of videos, content browsing, effective storage and content delivery. The video summarization is one of the techniques of video processing which provide effective and advanced information and also can processes heavy video data. Generating video summaries require good understanding of visual semantic content. It may be difficult to capture the semantics of a video using most of the existing techniques. Here, the artificial intelligence plays a crucial role in generating video summaries. This paper presents a review and comparison of artificial intelligence approaches opted for video summarization.

Extractive Summarization of Recorded Odia Spoken Feedback

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In this research article, we have developed Odia speech summarization system by using hidden Markov model based continuous speech recognition engine. The developed speech recognition engine takes the Odia continuous speech as input. The continuous Odia speech inputs are collected from students on the basis of different kinds of academic feedbacks. It is found that the continuous speech recognizer is having 89% word accuracy and 77% of sentence accuracy rate. The output of speech recognition engine is fed as input to the Odia summarizer module. Odia summarizer module has selected the effective feedback from voluminous oral feedback by using rank matrix.The performance of Odia summarizer module is measured using the ROUGE-1 tool in terms of of average recall and precision score.We have also measured the compression ratio of our summarization module over different academic feedback domains.

Frame Change Detection in Videos – Challenges and Research Directions

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Due to surplus availability of low cost video recording and uploading devices day by day there is huge accumulation of video data in the cyberspace. Retrieving these data according to image queries or video queries is a complex task. The process deals with query image or frames of query video matching with the frames of the videos present in the database. Matching all the frames give rise to many redundant calculations because of presence of same type of frames in the videos in the database. For selecting only the highest information frame the frame change detection in the videos have to be executed. A robust frame change detection algorithm should address the problems of abrupt transitions, gradual transitions, and automatic threshold selection irrespective of video genres and also optimised time of computation for the objective. In real time, since this is a pre-processing sub task for tasks like CBVR or video indexing, the computation time should be minimized. The survey gives a comprehensive detail of researches based on the problems addressed by them which opens up further research directions in the field of frame change detection.

Speech Impairment Recognition using XG Boost Classifier

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Artificial Intelligence (AI) gives the desired results to learn without being modified expressly. Its emphasis is on the turn of events and planning of PC programs that can get to the information and utilize it to learn themselves. By learning various example acknowledgment and theoretical learning hypothesis in AI, computerized reasoning investigates the examination and development of calculations that can learn and make forecasts. In this paper we talk about and look at Naïve Bayes, KNN, Decision Tree, SVM, Extra Trees, Random Forest and XG Boost Classifiers which are AI calculations as for precision. Speech impairment is a technique in which speech sounds signals produce that is effective to communicate with others. Speech impairments can be any type, such as occasionally using a couple of words, to severe, such as not being capable to produce speech sounds signals at all. The basic outcome is to study the various machine learning algorithms for speech impairment. For effective machine learning results there are four basic parameters selected with effective techniques, knowledge parameters and advanced trees algorithm for displaying the valuable results. Speech impairments in early days can have an off-putting influence on social development. In this article, Parkinson's dataset from the UCI library is used with the basic speech-related restrictions and obtain a better accuracy level with XG Boost classifier compared with the other classifiers.

Research Insight of Indian Tonal Languages: A Review

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These days interaction between man-machine as well as between natural language is the challenging research domain. Automatic Speech Recognition (ASR) is the conversion of speech signal into text with computers in the speech technology is the most vital research field. Previous years research done concerning to ASR of Indian Tonal languages like Punjabi, Bodo , Mizo is done in this paper.

Applying Entity Recognition and Verb Role Labelling for Information Extraction of Tamil Biomedicine

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Information Extraction is the process of automatically identifying specific informative statements from textual sources. In our IE system, we present the information drawn from Tamil Siddha texts in a user-friendly structure or interface with the help of entities and semantic roles. The semantic roles were identified for both nouns and verbs. The verb-frame learning in SRL gave rise to a set of common patterns surrounding predicate terms that dictates the type of information the sentence in question has to offer. These patterns include definite slots that are to be filled by the constituent entity and relation candidates to perform their respective roles. Based on the position of entities and the type of predicates and roles, the sentences are classified into two broad categories. They are i) Informative sentences and ii) Instructional sentences. Thus each sentence is parsed according to the optimal pattern to reveal the underlying details. Thus a rudimentary Biomed IE system is built solely based on entities and its relation in a context. This system has many practical applications that range between building a basic mobile application with minimum or no manual tagging to the construction of a fully defined ontology on Siddha Medical Information.

Identification of Two Tribal Languages of India: An Experimental Study

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In the Indian scenario, the inadequacy of digitally available resources of language restricts the expansion of speech technology applications. This paper describes an experimental study of two such low-resource tribal languages (LRTL) of India, Santali, and Hrangkhawl for language identification (LID) purposes. Two different approaches have been taken for the present analysis of 10 hours of speech data. In the first approach, the measure of performance of the LID using the outcome of the acoustic analysis of these two LRTL has been used. On the second approach, we have used a 39-dimensional feature vector and used Vector Quantization (VQ), Gaussian mixture model (GMM), Support Vector Machine (SVM), Multilayer Perceptron (MLP) as classifiers. On collected speech data, we have compared these two proposed approaches. We observed after analysis that the second approach outperforms the first approach and received encouraging results for researchers of LRTL. This experimental study also shows important characteristics of the acoustic features of both languages.

Parametric Study of Through Transmission Laser Welding with Teaching Learning Based Optimization

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We apply the Teaching Learning Based Optimization (TLBO) algorithm to find the optimal parametric conditions for Through Transmission Laser Welding (TTLW) of two dissimilar transparent thermoplastics. Using TLBO, we optimize RSM based mathematical models of response parameters separately (single-objective optimizations) and then perform multi-objective optimization of crucial response parameters. We also show that TLBO is a reliable and flexible algorithm for practical applications where desired goals can be easily modified according to user needs.

Research Landscape of Artificial Intelligence in Human Resource Management: A Bibliometric Overview

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This study presents a panorama of the research conducted on the area of Artificial Intelligence technologies in Human Resource Management through a bibliometric review, and amalgamate the research trends. A dataset of 247 Scopus-indexed studies published over the past 25 years was examined to identify the key characteristics and research hotspots in this field. The findings highlight that most of the studies were conducted in recent years, with more than 70% of the relevant documents published in the last decade, since 2010. The key areas and themes that have contributed to the development of this literature were identified. The results of term co-occurrence analysis reveal that majority of research in the area of Artificial Intelligent in Human Resource Management is concentrated on the aspects of talent evaluation, resource allocation, and training and development. There are several other key areas and aspects related to Artificial Intelligence in Human Resources function that merit focus, additional work, and warrant more conceptual and empirical studies to be conducted. A discussion on the research gaps and recommendations on future direction and is also presented.

An efficient Class-F PA with SSL/SIL based matching network for Body Centric Wireless Transceiver

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This paper proposes a continuous-mode Class-F power amplifier (PA) to accomplish wide bandwidth, large output power, and high efficiency for Body Centric Wireless Transceiver using 0.25um GaN technology. This work includes SSL/SIL line based input and output matching and harmonic control networks. SSL/SIL has been adopted as a replacement to the conventional inductors in order to achieve the desired band. The main focus of the work is to achieve high efficiency with wide bandwidth. The proposed design combines a termination of even and odd harmonics to deliver voltage and current waveform isolation with minimal matching network (MN) design complexities. The simulation is done by the Key sight Technologies Advanced Design System (ADS). The results are quantified by using high power-added efficiency (PAE) and output power. PAE of 85.01% and output power of more than 44.1dBm and gain level of 15 dB is obtained over wide bandwidth 2.1 GHz to 2.9 GHz. The proposed PA can be utilized for health care technology for better performance.

Envisaging the future homes with 'Human-Building Interaction'

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This paper throws light on the trends observed in the construction industry which depicts why it is imperative to study the houses of the future. It states the home-automation tools used in the past and the incorporation of Human-Building Interaction (HBI), a pedagogical framework in the present, depicting how 'domotics' has changed over time, by elucidating it with the temperature aspect. It considers the three domains of the nascent field of HBI, namely, HCI, Computing, and Architecture; and how the building caters as well as transforms itself to the needs of inhabitants by considering their activities, emotions, and behaviours upon the integration of HBI. This is discussed further by categorizing the user groups on the four broad categories divided by their age and dividing the spaces in the house by the functions performed by the users. This research further utilizes the framework's model as well as the incorporated intelligent tools to comprehend how the inhabitants interact with the built environment upon its inclusion. The research then discusses the risks and issues involved with the integration of HBI and the constraints with the availability of extant technology. It also presents a case of how these current trends will transform the houses of the future with its incorporation. It then concludes with the scope for further research in the same field.

Comparative Analysis of First Order Optimization Algorithms

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Deep Learning is a popular and emerging research area showing great contribution in various fields. Advancement in Deep Learning during last few decades makes it the most prominent field with lots of new possibilities for applying in the various new areas. Recently Deep Neural Network become more complex and deeper which require more generalize optimization algorithms. This paper is a systematic comparative study of Deep Learning having focus on some popular and most commonly used first order optimization algorithms. It covers varieties of first order optimization methods used for improving training accuracy and trim down training time.

A Review on Application of Artificial Intelligence Techniques in Control of Industrial Processes

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Artificial Intelligence (AI) is one of the most capable and advanced technologies for expansion today and has remarkably affected several fields, including process control. AI adopts that at least something such as human intelligence may be so accurately defined that a machine can to simulate it. This paper reviews the literature based on the applications of artificial intelligence techniques viz. neural network, fuzzy logic, ant colony optimization, genetic algorithm, particle swarm optimization, simulated annealing, knowledge-based systems, automatic knowledge acquisition, case-based reasoning, and ambient-intelligence. etc. Also their hybrid techniques such as neuro-fuzzy, exist in literature. The application of these techniques are explored for some important paper industry and sugar industry subprocesses such as lime kiln process, headbox operation, paper machine, evaporator, boiler, digester, etc.

Crop Monitoring System for Effective Prediction of Agricultural Analytics in Indian Agriculture using WSN

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The agriculture system is one of the most essential and important factors of a country. While looking at the statistics, India is contributing 13% to the world's agriculture. Crop maintenance plays a crucial role in the agriculture industry. The crop management includes different factors like humidity, soil temperature, ambient temperature and illuminance. In this research work, the sensors fetch timely reports based on the defined attributes; the numerical data (time-series) is collected from the sensors and modelled using an effective prediction system; LSTM model for accurate and efficient predictions. This research identifies the earlier failure of the sensor ecosystem based on the trained data frames. This model helps in predicting the time failure and facilitates the end user in finding the most appropriate time for equipment maintenance. Depending on the precision values generated by this forecasting model, the sensors accuracy is predicted for effective predictive maintenance of crops mainly focusing on small, medium or large crop monitoring strategies.

Trend Analysis of Meteorological Index SPI Using Statistical And Machine Learning Models Over the Region of Marathwada.

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Droughts are the natural phenomena which are very unpredictable in nature therefore developing drought prediction techniques are very challenging moreover their results need to be scrutinized with precision. In this study our focus is to analyze Standard Precipitation Index (SPI) using statistical Mann Kendall test as well as Machine learning techniques. The Monthly rainfall data from Jan to Dec for the time span of 41 years was used to generate SPI values for the region of Marathwada, Maharashtra, India. Then the time series analysis of SPI6 and SPI12 is done both with statistical methods and with the ML algorithms of linear regression, Quantile regression and Generative Additive Model in the R software. The results of both statistical and machine learning models were scrutinized and confirmed the detection of decreasing trend. Machine Learning modeling provides some insight to the use of SPI as a prediction tool.

Optimized Xgboost Algorithm using Agglomerative Clustering for Effective User Context Identification

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In recent decades, research on efficiently identifying User Context is increased due to its large applications in recommender system, health monitoring system, old age assistance, smart homes, security and surveillance, etc. The context comprises of any information related to user, like its location, external environment, identity of user and the Activity performed by the user. In this paper, we have opted activity as the context dimension and try to find suitable machine learning (ML) algorithm for AR (Activity Recognition). We have used two publicly available datasets for the evaluation of our work. The result of the analysis shows that Xgboost is the suitable classification model for AR context identification. Not only this, we have proposed a new method to optimise the suitable (Xgboost) ML model by combining, clustering along with classification using Agglomerative Clustering method. Our proposed method is evaluated on the same datasets and the results show that our proposed method is providing better accuracy in comparison to other conventional ML models.

1D CNN Based Approach for Speech Emotion Recognition using MFCC Features

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Identifying the emotions from speech is a challenging work for a machine learning (ML) algorithm, that show a decisive appearance in the area of speech emotion recognition (SER). SER give an important appearance in many real-life applications such as human-robot interaction, human behaviour assessment, in a call centre, and many more. In this field, researchers focused on either hand-crafted classifiers or deep learning approaches used to increase the recognition rate. In this work, our target to contribution i) reduce the computation cost of the SER model and ii) improve the average accuracy of the SER model than the state-of-the-art. To achieve above target, we proposed a novel approach for SER. In which Mel-frequency cepstral coefficients (MFCC) used to extract the features from audio file and apply 1D convolutional neural network (1D CNN) to recognise the emotions. The proposed approach is evaluated on popular public speech corpora Ryerson audio-visual database of emotion (RAVDESS). And average accuracy (82.93%) reported better as compared to the existing SER model with reduced computation cost.

Review on Text Detection and Recognition in Images

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In recent years, Text detection and recognition in images has become very significant and beneficial owing to the fact that images generally tend to contain prominent and precise information that can be made used for various purposes. The text contained in the images is of great importance in some vision-based applications and therefore has become a topic of academic research in areas like document analysis and computer vision where lots of efforts are being put in developing and implementing techniques which can efficiently extract textual information from images. The purpose of this paper is to discuss and evaluate the importance of text detection and recognition in computer vision applications and the various challenging problems it leads to while developing and analysing solutions for its practical implementation with significant accuracy and desired results. This paper further focuses on different approaches proposed and developed so far with their achieved performances across various benchmarks. It further analyses various existing problems in text detection and recognition and then discusses different methodologies including step wise methodologies and integrated methodologies.

Comparative Analysis of Machine Learning Algorithms on Gender Classification using Hindi Speech Data

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A speech signal consists of salient paralinguistic details, which include the language, gender, age, and emotion of the speaker. This information from speech signals has various practical applications in crime-analysis, security & monitoring, and brain-computer interface. The primary and most important step for these applications is to identify gender using speech data. Preprocessing plays a crucial role in the development of speech identification system due to the presence of background noise. In this study, we have compared the performance of four Machine Learning (ML) algorithms to classify gender using Hindi speech data. The data was pre-processed using Speech Endpoint Detection (SED) algorithm and windowing process from which the Mel-Frequency Cepstrum Coefficients (MFCC) and Pitch Range features were extracted. It was observed that the Random Forest algorithm outperformed other ML classification algorithms - Support Vector Machine (SVM), k-Nearest Neighbor (k-NN) and Logistic regression and achieved an accuracy of 78.84%.

COVID-19 detection through Mamdani- Based Fuzzy Inference System

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The ongoing outline of the world is worst, the outbreak of the virus from the Wuhan city, named as Novel Coronavirus or NCOV. It is suspected that the spread of NCOV was from the sea market of Wuhan. It became a major health issue to people who are infected or came in contact to an infected person. NCOV is a contagious disease it is transmitted from one living being to another. 11th day of March ,2020 WHO declared nCOV as a pandemic. No specific medicine or treatment is available till 30-06-2020. Many developed countries like China, U.S.A, U.K, Russia etc countries burned the midnight oil for the proper treatment of nCOV. This paper proposes a fuzzy logic-based detection of nCOV. Even though testing kits are available, but they are limited to a country like India and it takes more time to confirm a COVID positive. So, the proposed system will save money and will also make the testing safe and quick. This system follows every guidelines issued by WHO.

Sensor Data Fusion Using Machine Learning Techniques in Indoor Occupancy Detection

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Machine learning techniques have been considered for the fusion of environmental sensor data to detect indoor occupancy. Indoor occupancy detection is carried out to monitor and control HVAC, efficient utilization of infrastructure, to provide an effective working environment, and also maintain social distancing in the current scenario. The analysis and comparison of various ML techniques on the UCI repository occupancy dataset is cornerstone of the paper. The dataset consists of temperature, humidity, light, and CO2 sensor data. WEKA simulation tool is used to pre-process and apply classification algorithms on the downloaded occupancy dataset. Classifiers have been first applied on single sensor data and after that on the combination of sensors data to see the impact of accuracy on results. Performance of the classifiers is evaluated on metrics like TP, FP, TN, FN, Specificity, Sensitivity, Precision, FPR, RMSE, RRSE, and accuracy to detect occupancy in a lab room precisely. Future work will include the preparation of own environmental sensor dataset and algorithm design.

Covid'19 virus life progress span by using Machine Learning Algorithms and Time Series Methods

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In 30 January 2020, first coronavirus case was found in India, which was originated from a seafood wholesale market in Wuhan, China. World Health Organization (WHO) officially named this coronavirus as COVID-19. Since now the first case found, India has reported a total of 182,490 confirmed cases and 5186 deaths as of 31 May 2020. Currently 6,172,448 confirmed cases and 371,186 deaths from the coronavirus COVID-19 outbreak as of now. COVID-19 plague does incredible damage to individuals' everyday life and nation's financial turn of events. This paper embraces two sorts of numerical models, i.e., Linear Regression model, Skew Normal Distribution Model. The pestilence patterns of SARS were first fitted and dissected so as to demonstrate the legitimacy of the current scientific models. The outcomes were then used to fit and examine the circumstance of COVID-19. The forecast consequences of two distinctive models are diverse for various parameters and in various locales. By and large, the fitting impact of Skew Normal Distribution model might be the better that the impact of Linear Regression Model.As per the present pattern, in view of the two models, the all-out number of individuals expected to be tainted is 136000-301720 in India. COVID-19 will be over most likely in Late-September, 2020 in India and before Late-October, 2020 in different territories individually.

Security and Vulnerability Issues in NoSQL

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There are so many online courses which are very famous among the students because it provides a free or cheap education material among all others. There is a rough estimate that there are more than millions of people who are using different coursed provided by Massive Open Online Courses (MOOCs). Open sources of technologies have been organized there courses. So many organized platforms shifted towards NoSQL, when they were attracting with the users and data was gradually increasing. But there was very big discussion after that on the threats and risks related to NoSQL technologies pose to learners. The following study is presenting a tip to toe presentation and investigation of hypothetical or fraudulent insurance possibilities. What's more, target for directory. Give point by point correlation between customary NoSQL and SQL directory recognize a lot of liabilities natural to delegate directory functions i.e. Cassandra and MongoDB. We additionally give instances of assaults. The conversation helps students also, functions designers to build the consciousness of dangers emerge while connecting on the web with stage sending directory.

Artificial Intelligence Applications and Techniques in Interactive and Adaptive Smart Learning Environment

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Smart Learning Environments embodies the amalgamation of various educational technologies and their usages for enhancing the learning contexts of students. Artificial Intelligence plays a prominent role in the integration of various learning models into the educational technology products. The paper focuses on the review of the most significant Artificial Intelligent techniques in the various learning models that are based on Artificial Intelligence algorithms, Machine Learning and Deep Learning techniques with special emphasis on the Natural Language Processing Applications in the Smart Learning Environments. Various machine learning and deep learning based learning models have been developed and integrated into the Intelligent Tutoring Systems for improving the students learning outcomes and thereby providing personalized learning contexts to a large number of the students. The goal of the paper is to analyze and compare various Artificial Intelligence, Machine Learning and Deep Learning techniques and Natural Language Processing applications that have been used in the building of the smart learning environments. Such analysis would be useful for analyzing the effectiveness of Artificial Intelligence techniques in improving the learning environments for various educational applications. This paper with the analysis would lay the ground work for further enhancement and improvement of the Artificial Intelligence based learning models in multi-agent environments and would a great contribution in improving the working of the Intelligent Tutoring Systems. The comparison analysis would be useful in consideration of the most effective techniques that would be easily adaptable in the construction of the Artificial Intelligence based learning models and smart learning environments. The study shows the lack of adaptability of Artificial Intelligence based learning models for students different learning needs and has been able to discover the need to build the integrated educational technologies and improve on the same for a seamless integration of it in the various learning environments and also provides a fertile ground for potential research work in the future.

A Literature Review on Virtual Assistant for Visually Impaired

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There are various communication barriers for visually impaired people, and they have to face various challenges and have to be dependent on other people. This literature review analyses the problems that are being faced by visually impaired people and seek to find an affordable, efficient, feasible, and reliable solution for them by trying to convert the visual world into an audio world and make the visually impaired feel empowered and independent.

Present scenario of Emotions based Speech Systems in India

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Abstract
Chatbots aka. Conversational Agents (CA) have always fascinated us with its ability to intelligently interact and behave like the human species. The growing advancements in AI-based technology development of voice-enabled CA have bought new needs for Human-Machine Intelligence (HMI) to present social behaviours that are habitual in Human-Human communication. Emotionally Intelligent Chatbots are emerging with growing popularity with the ability to understand, recognize emotions, and flawlessly interacting with the users. It is one of the most anticipated inventions that everyone is desperately waiting for. In this survey, we argue that chatbots should be enriched with social characteristics, speech acoustic features rich in the linguistic study of temporal and prosodic features equipped with advanced AI and Deep Learning classifier models for Indian languages that are coherent with user's expectations. The paper focuses on identifying the challenges and strategies for designing quality Emotions based AI chatbot. It is likely to expect that this review will provide opportunities to researchers and technology developers to advance Human-Machine interactions.

Congestion Control Mechanisms To Avoid Congestion In VANET: A Comparative Review

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The congestion control in VANETs is currently a topic which has high research potential and vast industrial application. Methods for controlling the congestion in VANETs have been accomplished through different algorithms to ensure a faultless, disrupted connection between the vehicles. Significant strategies for clogging (congestion) management recommended for reducing VANET congestion is studied comparatively and discussed. The communication-based system for preventing collisions and controlling congestion monitors the congestion in the road network. Every technique used for congestion control in VANET has its own advantages, drawbacks and limitation. Although a wide range of strategies for control of congestion is suggested, the safety risks resulting from congestion must be addressed to ensure an effective VANET network. The fundamental problem in the collision control system is the preservation of communication on the MAC layer regardless of VANET properties. It leads to end-to-end transmission delays and failure of packet. The DCC system has been introduced to address these critical problems. Two channels are now reserved in WAVE for the latent security use. This paper describes some important congestion control techniques with the evaluation of their results.

Comparative Study of Various Stable and Unstable Sorting Algorithms

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Stability and Unstability are main characteristics of every sorting algorithm. A sorting algorithm can either be stable or unstable based on some conditions. Mainly stable sort includes Bubble sort, Insertion sort, Merge sort and unstable sort includes Heap sort, Selection sort, Quick sort. There are various Literature that compared these sorting algorithms on the basis of platform dependent factors like Space complexity but very few researchers had compared on the basis of platform independent factors. This study Compares these stable and unstable algorithm on the basis of factors like in-place, data sensitivity, time complexity: best, average, worst case as well as platform dependent factors. The code were implemented in MATLAB and Timeit() function is used to calculate elapsed time. If anyone wants to maintain the first come first serve order in sorting of data then stable sort is used. The outcome of research shows that in terms of elapsed time insertion sort is fastest stable sort when input data is small but it increase merge sort will be the fastest algorithm. In case of unstable algorithm, selection sort will be fastest if input data is small and heap sort is fastest as the size of input data increases.

SIM-BERT: Speech Intelligence model using NLP-BERT with improved accuracy

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Speech recognition model and language understanding is the most critical task when it comes to understanding the language models (LMs). At present, various end-to-end learning model has been used for speech recognition using unidirectional and bidirectional language models. Despite their theoretical advantages over conventional unidirectional and bidirectional approach, it has been found that the accuracy is not improved. Using BERT (Bidirectional Encoder Representations from Transformers), which is recently proposed pre-trained language representation model from Google's AI team, consists of multi-layer bidirectional Transformer encoder, provide much better accuracy than only using unidirectional or bidirectional approach with huge corpus of training data. Whereas, NLP (natural language processing), is used for language understanding (LU) and language generation (LG). So, in this paper, we have designed a model to extract the text from speech, based on classification ranking and then use BERT to analyze the context and semantic of the entire sentence of top ranked sentences. BERT uses bidirectional approach to understand the semantics of the words in a sentence from both left and right directions and provide most relevant score based on the meaning of entire sentence and words around it. This has been observed that, using pre-trained model decreases the processing time and, increases the accuracy and turnaround time for end-to-end speech recognition system.

Prediction Analysis of Forecasting Applications with Concept Drifting Distributions

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Data mining and machine learning are crucial in most of the forecasting and prediction applications in this digital era streaming data. Many classifications algorithms are built to solve the challenges of data streams. Concept drift occurs where the distribution of underlying data tends to change with the course of data. This become samaj or obstacle while dealing with streaming applications such as forecasting which involve largely non stationary data. This paper lists various drift detectors which are used to tackle the problem of drifting patterns in some of popular forecasting and prediction applications. Four case studies namely electricity pricing, power supply, sensor and weather are considered to highlight the use of drift detectors. A comparative analysis of prediction accuracy has also been conducted in the current work.

A Hybrid Cardiovascular Disease Prediction System Using Machine Learning Algorithms

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Cardiovascular illness one among the greatest cause of death across the globe and hence the detection at its beginning stage is so significant. In this paper, a couple of supervised machine learning algorithms are adopted for predicting the cardiac abnormalities at premature stage by using the medical details of patients. The results are then compared against a set of popular supervised classifiers. In the classification stage, selected 14 attributes of the medical records are given as input to the classifier to determine the possibility of cardiac disease. The proposed machine learning-based decision support system is expected to assist doctors in the diagnosis of heart patients efficiently.

Assistive Technology is a Boon or Bane: A Case of Persons with Disabilities

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The need for assistive technology is growing rapidly from past few years considering the fact how it is important for the person with special needs in order to live their life independently. The fact is clearly evident by researches that the social inclusion of persons with disabilities is significantly possible with the help of assistive technology, as it enhances the functioning and performance of their daily lives.

The purpose of this study is to discuss how assistive technology is impacting the lives of Persons with Disabilities at workplace. The study conducts analysis on gathering information about how assistive technology is impacting the lives of Persons with disabilities and on the other hand initiatives taken by companies for their diverse workforce, based on data collected from various databases like Google scholar, research gate etc. This study discussed about various contributions being made by authors and journals. The paper is original and holds significance to appreciate the usage of assistive technology for Persons with disabilities. This study will also help to know and understand the barriers with assistive technology implementation.

Mental Illness Diagnosis from Social Network Data using Effective Machine Learning Technique

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Social media is a means of communication that connects a lot of people using the internet. It plays a crucial role in our daily life. It helps in detecting the people who are mentally ill. So, in order to detect mentally sick people, diverse methods are used. Aim of the research is to examine Facebook user's comments to predict the mental illness among online users. For such purpose ensemble classification techniques are used to evaluate the efficiency. The results show that gradient boosted classifier provides better accuracy that is72.62 % for detecting depressive emotions.

Financial Inclusion via Fintech: A Conceptual Framework for Digitalizing the Banking Landscape of Rural India

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The Indian financial sector is highly diversified and has undergone massive changes in the past few decades. The changes can be best described in terms of the new entities entering the Indian financial market as well as the exponential growth of existing financial services. Banking is one of the most vital elements of the financial sector. India's banking sector has migrated from a closed banking structure to an open and shared ecosystem. This transformation is a result of the use of technology in banking and the related service sectors. The present paper attempts to provide a detailed conceptual overview of Fintech in disrupting the existing traditional banking sector in India. It also sought to explore how the potential of Fintech can be fully realized in transforming and reshaping the Indian banking sector and the financial inclusion landscape in fundamental ways concerning rural India. At the end of the paper, the authors present a conceptual model for the process and the existing state of financial inclusion via Fintech in rural India.

Sustainable Development through adoption of digitization towards functioning of Self Help Groups

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Self Help Group acronym SHG has been a buzzword for strengthening the lower income sector since last two decades and especially during the Covid-19 outbreak. For strengthening the same lots of efforts has been taken in terms of ICT application including micro-finance and financial inclusions for this sect of people for assisting them to not only survive but to start their own ventures with the little amount they gather. The digitization has helped these SHG members to attain transparent services by the government without wastage of time, assisting the government to reach bottom of pyramid. The study is the secondary data analysis through the available literatures and reports which gives an overall view about not only the steps taken to strengthen the functioning of SHG but also the pathway towards digitization of SHG in to-days date. The paper also gives insight for improvement of SHG and towards future scope of study.

Indira Gandhi Delhi Technical University for Women (IGDTUW)

(Established by the Government of NCT of Delhi vide Delhi Act 9 of 2012)

Education - Enlightenment- Empowerment

Indira Gandhi Delhi Technical University for Women (IGDTUW), Delhi was established by Delhi Government in May 2013 vide Delhi State Legislature Act 9,2012 in order to play a major role in the capacity building and imparting high quality technical education to the Women of our country.

The University offers B. Tech. in (CSE (AI), CSE, IT, ECE and MAE), Integrated B.Tech. (ECE)+MBA, Integrated BTech (MAE)+MBA, B. Arch., M.Tech. in (CSE-AI, IT-ISM, ECE –VLSI and Robotics & Automation), M. Plan (Urban Planning), BBA, MBA, MCA and Ph.D. courses. In last seven years, the University has achieved a number of milestones and has been awarded the 2nd fastest growing university by India Today group. University has also achieved ISO 9001:2015 QMS Certification from STQC Certification Services, Government of India. The recent achievements of the University are as under:

- The University secured 2nd rank in the category of Higher Educational Institutions Exclusively for Women in the award ceremony of Atal Ranking of Institutions on Innovation Achievements (ARIIA) Rankings 2020. Organized on 18th August 2020 by the Ministry of Education, the ceremony was graced by the Hon'ble Vice President of India
- University was bestowed with DIAMOND rating from QS I·GAUGE.
- University was conferred Shrimati Sushma Swaraj "STREE SHAKTI SAMMAN" due to its vision and commitment.

Research and Industrial Collaborations

University has signed several MoU with leading industries including NASSCOM Foundation, IBM, Cyberpeace Foundation, Fluor Daniel, EATON and several others for technical upgradation of students. IGDTUW has also received research and project grants from various Government and Private agencies including of Rs.363 Lakhs from Department of Science and Technology for consolidation of University Research and Excellence and Rs. 70 Lakhs for establishing Centre of Excellence in Artificial Intelligence.

University is having strong and active linkage with various Government bodies including DSSSB, MCD, Delhi Police and others for developing and customizing their software and to provide trainings to the staff on emerging trends like Cyber Security, Forensics and others.

Placement

Retaining and revitalizing the past glory, the highly energetic and dynamic team of students and faculty ensure that the students have an incredibly great platform to prove their skills and merit. Many of our students have been placed in renowned National and Multinational companies. We are honored to have corporate giants like Google, Microsoft, Uber, Intuit, Goldman Sachs, American Express, Walmart, Netapp, Cisco, GE, Nestle, Siemens, Accenture , TCS, DELL, Qualcomm, Mahindra & Mahindra, Maruti , Honda, Bajaj Automobile, MG Motor, Tata Motors, Nestle, Eaton, HUL, Ather Energy, Siemens, Honeywell, Cameron, Fluor Daniel, and list is endless, visiting us annually and offering great opportunities to our students.

The Placement Season for the batch 2019-20 started with the high note and more than 96 companies have visited the campus for about 316 Full Time Offers, 50 pre-placement Offers and more than 189 internship offers. The CTC of Rs.43.3 Lakhs from Microsoft IDC and internship package of Rs.1.5 Lakhs per month from Uber are the highest in each category. First time Google made its presence in the campus and specially organised the "Kickstart" Roadshow especially for IGDTUW students.

It is a matter of stupendous pride to share that compared to the last year, there has been a rise in average CTC from 10.3 Lakhs per annum to 13.33 Lakhs per annum and a rise in highest package from 41.6 Lakhs to 43.3 Lakhs.

Awards and Recognition

The University students are encouraged to participate in various National and International events, competitions including Hackathons etc. Recently, Ms Monika, a student of MTech-IT (ISM) is awarded with a internship at FS-ISAC, USA with a scholarship of worth USD10,000. Last year, 3 students were selected for Google I/O Global competition and one student of IGDTUW won the Facebook Global Prize Award of USD 10000 in Facebook Annual Conference. Every year, teams from IGDTUW girls have won several prizes including first prize in Smart India Hackathon.

IGDTUW-Anveshan Foundation

University has promoted and incorporated a Section 8 Company with name IGDTUW-Anveshan Foundation to propagate entrepreneurial culture and ecosystem among women in 2016. Anveshan Foundation is funded by Directorate of Training and Technical Education (DTTE), Govt. of NCT of Delhi with a support grant of Rs. 2 Crores and is also recognized by Department of Science and Technology (DST), GoI as Technical Business Incubator (TBI). All kind of facilitation in four phases of complete incubation and venture development cycle i.e. i) Pre-incubation, ii) Incubation, iii) Acceleration and iv) Post-incubation are provided by IGDTUW-Anveshan Foundation. Currently 12 companies led by young women entrepreneurs are doing excellent work in various domains of expertise. Also, more than 100 students are working on their ideas in pre-incubation phase.

Recently IGDTUW Anveshan Foundation has signed a Contract with GiZ, a German organization for Strengthening Incubation & Start-up Ecosystem for Women Entrepreneurs in Delhi NCR under which, events like boot camps, training sessions, workshops and mentoring will be sponsored by GiZ. Total contract value is Rs. 25 Lakhs.