# Vasavi College of Engineering (A)
## Department of Information technology
### Report on
### International Conference on Computational Intelligence and Data Engineering
### (ICCIDE-2020)

The **AICTE Sponsored** 3rd International Conference on **Computational Intelligence & Data Engineering (ICCIDE 2020)** was organized during 8 and 9 August, 2020, by **Department of Information Technology, Vasavi College of Engineering**, Hyderabad, in association with Springer. The ICCIDE-2020 is conceived as a forum for presenting and Exchanging Ideas and Results of high quality research work in cutting edge technologies and most happening areas of Computational Intelligence and Data Engineering.

The ICCIDE-2020 solicited latest research ideas on Computational Intelligence and Data Engineering, thus inviting researchers working in the domains of Machine Learning, Bayesian Networks, Computational Paradigms and Computational Complexity, Rough Sets, Semantic Web, Knowledge Representation, Fuzzy Systems, Soft Computing, Data Models, Ubiquitous Data Management, Mobile Databases, Data Provenance, Workflows, Cloud Computing, Bigdata Analytics, Scientific Data Management and Security, etc.

The sincere effort of the program committee members and organizing committee members coupled with indexing initiatives from Springer have drawn a large number of high-quality submissions from students, research scholars, and faculty members all over India and abroad. The ICCIDE-2020 team as a whole received around 151 submission and peer review committee has accepted only 38 high quality papers of them, which is around 25.16% of submissions. All the accepted papers are published in "**Lecture Notes on Data Engineering and Communications Technologies (LNDECT)** series of **Springer**. The Conference brings together over 180 delegates from around the world and from a range of institutions and organizations to exchange ideas and discuss the challenges in emerging technologies.

The Conference is structured with seven keynote sessions by eminent professors followed by eight technical sessions which were chaired by distinguished faculty of outstanding institutions in the country.



The ICCIDE 2020 was organized through online mode via the Zoom platform. The inaugural function of ICCIDE-2020 was started by welcoming all the dignitaries, delegates, and participants to the Conference by Ms.S. Aruna, Coordinator, ICCIDE-2020. Dr. K. Ram Mohan Rao, Professor & HOD, Department of Information Technology, and Convener of ICCIDE-2020, addressed the gathering by giving the welcome note on ICCIDE-2020. Then Prof. S. V. Ramana, Principal, Vasavi College of Engineering addressed the gathering. The Chief Guest of ICCIDE-2020, Prof. Ramachandram Sirandas, (Former Vice-Chancellor, Osmania University, Hyderabad), Vice-Chancellor, Anurag University, Hyderabad, addressed the gathering. Then, the Guest of Honour of ICCIDE-2020, Dr.NabenduChaki from University of Calcutta and one of the program chairs of this conference, addressed the gathering. Then, Sri M. Krishna Murithy Garu, Secretary, Vasavi Academy of Education, addressed the gathering. The inaugural function of ICCIDE-2020 was concluded with Vote of thanks by Dr. K. Shyam Sunder Reddy, Coordinator.

During the 2 days, the Conference was addressed with renowned eminent speakers from India and abroad. On the first day, three keynote speeches were presented by eminent researchers in Computational Intelligence and Data Engineering. Out of three, two were presented before the parallel technical sessions I and II, and another one was presented before the parallel technical sessions IV and V. Those three keynote speeches were presented by:



**Prof. Rajkumar Buyya**, Director, Cloud Computing and Distributed Systems (CLOUDS) Lab, The University of Melbourne, Australia, and CEO, Manjrasoft Pvt Ltd, Melbourne, Australia. He gave a keynote address on "**New Frontiers in Cloud and Edge Computing for Big Data & Internet-of-Things Applications**". In this address, he covered (a) 21st century vision of computing and identifies various IT paradigms promising to deliver the vision of computing utilities; (b) innovative architecture for creating elastic Clouds integrating edge resources and managed Clouds, (c) Aneka, a Cloud Application Platform, for rapid development of Cloud/Big Data applications and their deployment on private/public Clouds with resource provisioning driven by SLAs, (d) a novel FogBus software framework with Blockchain-based data-integrity management for facilitating end-to-end IoT-Fog/Edge-Cloud integration for execution of sensitive IoT applications, (e) experimental results on deploying Cloud and Big Data/ IoT applications in engineering, and health care, satellite image processing, and smart cities on elastic Clouds; and (f) directions for delivering our 21st century vision along with pathways for future research in Cloud and Edge/Fog computing.

**Dr. P. Sateesh Kumar**, Associate Professor, Department of Computer Science & Engineering, IIT Roorkee. He gave a keynote address on "**Android Malware Detection by Combining Supervised and Unsupervised Learning**". In this keynote address, he discussed about the three categories of Malware detection solutions such as Static, Dynamic, and Hybrid Analysis. The static analysis aims at analyzing the Java code or Manifest file components of the application, without executing it. Dynamic analysis, on the other hand, executes the application to capture its run time behavior. Permissions and network traffic are the two widely used attributes in static and dynamic solutions respectively. A Hybrid solution targets to merge the best properties of both. Analyzing the behavior of permissions and patterns of network traffic flows is the basis for the detection of Android malware attacks. In this talk, I will, first, introduce major issues with mobile security, review various analysis and detection models, summarize the possible limitations of the existing models, and finally, I will quickly review the models proposed by our team for Android mobile malware detection.

**Dr. Maode Ma**, Professor, School of Electrical & Electronic Engineering, Nanyang Technological University, Singapore. He gave a keynote address on "**Design of an Efficient Authentication Framework over Heterogeneous Vehicular Networks**". In this talk, he addressed the security issues of the VANETs with an introduction of a security framework over public transport based heterogeneous wireless vehicular networks to face the challenges of malicious attacks in vehicular environments efficiently. The security of the proposed solution has been analyzed and the logic correctness of the proposed solution has been proved by formal logic. Besides, performance evaluation shows that the proposed authentication framework can efficiently reduce authentication time and number of hops during message relay by sharing key information.

**On the second Day**, there were another four keynote addresses, in which two were presented before the parallel sessions V and VI, and another two were presented before the parallel sessions VII and VIII. Those four keynote speeches were presented by:

**Dr. Atul Negi, Professor**, University of Hyderabad, India. He gave a keynote address on "**Artificial Intelligence and Machine Learning applied for Societal Development**". This talk is about applying Artificial Intelligence and Machine Learning to solve problems important for society. The technological success of machine learning has a great potential to be applied to various data rich areas: education, improved governance, urban planning, and assistive technology for people with disabilities, health, agriculture, environmental sustainability, social welfare and justice and, sustainable development. These are fields where AI can have its strongest impact on society and aid in reducing human suffering and improving efficacy of welfare programs from various agencies. If guided by the right ethics the rapidly expanding field of AI has the potential to improve many aspects of our lives. When attempting to tackle social issues there is little incentive for researchers to tackle social problems with few platforms like conferences and journals that explicitly deal with such issues. Another difficulty is for researchers seeking to have a social impact is to find problems to address. This talk attempts to put together various internet sources and literature to give a glimpse on the immense potential there is for technology like Machine Learning to be applied for the Societal Development.

**Mr. Aninda Bose**, Senior Publishing Editor, Springer New Delhi. He a keynote address on "**Elements of Book Publishing**". He discussed about the importance of research publishing which can be defined by a simple quote of Gerard Piel, which says "Without publication, science is dead." The story of book publishing started more than 1100 years ago and it is further revolutionized by the invention of first printing press in 1454 by Johannes Gutenberg. In the last 20 years, science and reporting of science have undergone revolutionary changes. Computerization and Internet have changed

the traditional ways of reading and writing. Hence, it is very important for scientists and students of the sciences in all disciplines to understand the complete process of writing books and their types. A famous American author, Stephen Edwin King, has correctly expressed the beauty of writing with his quote "To write is human, to edit is divine."

**Dr. K. Raghavendra**, Scientist/Engineer 'SG', Head High Performance Computing and Drones, Advanced Data Processing Research Institute (ADRIN), ISRO. He gave a keynote address on "**HPC Technologies- Cloud, Edge and Quantum Computing**". In this talk, he covered HPC technologies, key elements of hardware and software elements of HPC, Clouds infrastructure for HPC, Next generation System on Chip (SOC) for AI and Machine Learning. The presentation has covered the software and hardware technologies of Clouds and Edge Computing devices with case studies for Deep Learning models for Video and Speech Recognition models, autonomous systems development using Clouds infrastructure and deployment of such generated models on Edge computing HPC devices and Unmanned Aerial and Ground (UA/G) Vehicles for Real Time operations using HPC. The presentation has also covered the introduction to Quantum HPC technologies and Clouds being as the next generation Quantum Computing delivery platforms.

**Dr. Giuseppe Di Fatta**, Head of the Department of Computer Science, University of Reading, London. He gave a keynote address on "**Data-driven knowledge discovery from Brain Imaging of Alzheimer's disease patients**". Alzheimer's disease (AD) is a chronic neurodegenerative disease which is largely responsible for dementia in around 6% of the population aged 65 and above. The availability of human brain data generated by imaging techniques, such as Magnetic Resonance Imaging (MRI), have resulted in a growing interest in data-driven approaches for the diagnosis of neurological disorders and for the identification of their causes. The knowledge discovery process typically involves complex data workflows that combine pre-processing techniques, statistical methods, machine learning and data mining algorithms, post-processing and visualization techniques. In this talk, he discussed specific research efforts in this direction, promising results, open issues and challenges.

The Conference concluded with Valedictory session. Prof. K. Ram Mohan Rao, Convener of ICCIDE-2020, gave closing remarks on ICCIDE-2020. Prof. S. V. Ramana, Principal, Vasavi College of Engineering appreciated the whole team of ICCIDE-2020 for organizing the Conference successfully in online mode. The Chief Guest for valedictory session, Prof. A. Govardhan, Rector, JNTU Hyderabad, addressed the gathering and appreciated all those who made the event a grand success. Few of the participants have shared their feedback about the Conference. The Conference concluded with vote of thanks by Dr. K. Shyam Sunder Reddy. Gratitude was expressed to the Management, Principal, Convener, AICTE, Program chairs, Technical and Organizing chairs, Keynote Speakers, Session chairs, Authors, and participants.

JNTUH Prof. A Govardhan Rector

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