



# Fourth International Conference on Contemporary Computing and Informatics

12-14 December 2019  
Amity Global Institute, Singapore

## Fourth International Conference on Contemporary Computing and Informatics

12 December 2019

Amity Global Institute, Singapore



## Message from Senior Vice President & Dean, Amity Education Group



It is a matter of great privilege that scientists, researchers, scholars & corporate leaders from all across the globe have gathered under one roof to participate in International conference on contemporary Computing and Informatics (iC<sup>3</sup>I 2019) organized by Amity Global Institute, Singapore from 12th to 14th December 2019 in association with IEEE Singapore section. I heartily appreciate the technical support extended by IEEE and the interest shown by our corporate associates in making conference more rewarding, memorable and content rich.

We are living in an era which is considerably different from what it was a decade ago and the pattern will be continued in all years to come. It is the responsibility of Academia to remain well-informed with ever evolving Technological advancements and imbibe all such paradigms of Technology and Innovation in its students. All apart, one of the most important and noteworthy characteristics for an Academic Institution these days is constant movement towards globalization.

At Amity we benchmark only against the best institutions around the world. A large number of distinguished faculty have been brought into Amity from India and abroad with proven record of high level of scientific accomplishments to supplement the cause. Our faculties and senior teams travel all over the globe to learn and imbibe the best practices so that we can give a solid foundation for learning. Amity promotes Research and Innovation at all Amity Institutions, particularly in the cutting-edge frontiers, Science and Technology domains of national importance. Amity has undertaken a wide spectrum of important activities, such as providing Amity Research Fellowship for meritorious students, State of the Art research infrastructures and many more.

At Amity, we strongly value our partnerships with Other Academic Bodies in India and Abroad, employers and community as we work cohesively to enhance the research outputs for nation building and societal upliftment. Whether through research development or by providing the skilled employees, Amity is playing a distinctive role in furthering the nation's social, cultural, business and economic development.

I am confident that the outcome of conference will be highly enriching and beneficial for all the participants and they would be able to work together for mutual benefits. I extend a very cordial welcome to all worthy participants and wish fruitful deliberations and a pleasant visit to Amity Global Institute, Singapore

**Dr. Ajay Rana**

*Senior Vice President & Dean, Amity Education Group*

## Message from the General Chair



Dear Friends and Colleagues,

On behalf of the Organizing Committee of iC<sup>3</sup>I 2019, it is our pleasure to welcome you all to 4th International Conference on Computing and Informatics. iC<sup>3</sup>I 2019. The fourth edition of iC<sup>3</sup>I initiated by Amity Global Institute, Singapore to provide an international forum for the presentation and discussion of recent advances in computing and informatics. iC<sup>3</sup>I 2019 is technically sponsored by Singapore Section of IEEE.

The goal of iC<sup>3</sup>I 2019 is to provide an outstanding forum for researchers, practitioners, policy makers, and users to exchange ideas, techniques and tools, also to raise awareness and share experience related to all practical and theoretical aspects of computing and informatics. The conference will be held on 12th December at Amity Global Institute, Singapore.

We are honored to have three internationally renowned keynote speakers, who will deliver their keynote speeches in the morning sessions. A total of 174 submissions were received from different countries witnessing this as a truly popular and international event. The Technical Program Committee (TPC) comprising around 150 experts from academia and industry selected 52 papers for presentations. Acceptance rate is 29.88%. The conference will run in eight sessions.

We would like to express our sincere thanks to our Keynote speakers, all the authors, and the conference attendees. Our deep appreciation goes to Steering Committee members, TPC members, and Session Chairs for their invaluable contribution.

Recognition should go to the Local Organizing Committee members who have worked extremely hard for the details of important aspects of the conference programs and social activities. We appreciate the contributions of all the student volunteers who have given their time to help make the conference successful.

We would like to thank C & M Consultants for their great services as a Professional Conference Organizer (PCO). I wish to thank Mr. Sankaran of Research Publishing, Singapore for his invaluable support.

We are grateful to our technical sponsors IEEE Singapore. Finally, We would like to thank all our sponsors and supporters for their contribution to the conference. Enjoy the 2019 edition of iC<sup>3</sup>I 2019 and your stay in Singapore.

**Dr. S K Niranjana** *BBM, MCA, M Tech, Phd , Senior Member IEEE, MIE, MCSI, MISTE*  
*General Chair– iC<sup>3</sup>I – 2019*  
*Professor, Department of Computer Application, JSS Science & Technology University*  
*JSS Technical Institutions Campus, Mysuru, Karnataka, India – 570006*

## Message of the principal



Hi,

Greetings from Amity Global Institute, Singapore!

On behalf of Amity, Singapore, we are pleased to invite you to International Conference on Contemporary Computing and Informatics (iC<sup>3</sup>I) that will be held on 12 December 2019 to 14 December 2019.

We are confident that the dedication, enthusiasm and insight from the researchers from various countries will greatly enlighten the participants' experience in understanding the realm of computing and Informatics.

This conference is the brainchild of the top researchers to bring together the best brains for some discussions on the direction and flow of technology for the world in the next decade.

We would be delighted to have you present at this conference to hear what technology gurus and researchers have to share about the technology advancements and their impact on our business and daily lives.

We strongly believe that the superfluous efforts and devotions from the many hands will ascertain the International Conference on Contemporary Computing and Informatics (iC<sup>3</sup>I) a great success!

Our heartfelt congratulations and best wishes!

**Dr. Easwaramoorthy Rangaswamy**

*PhD, MPhil, MBA, MCom, BCom*

*PGDCA, SDALT, SDEQM, DACSA, ACTA, AFHEA*

*Principal & Provost*

# Keynote Talks

Date/Time: 12 December 2019 / 10:45 – 11:15



**Dr. Ramesh Belavadi**  
*CEO and Founder of Belavadi Technology Solutions*

**Keynote 1**

Date/Time: 13 December 2019 / 09:00 – 09:45



**Dr. Dilip Kumar Sharma**  
*GLA University, Mathura, India*

**Keynote 2**

# Technical Program

Session 1.1	Intelligent Computing 1
Date/Time	December 12, 2019 (Thursday) / 11:30 – 12:30
Venue	Class room 2
Chair(s)	Dr. Dilip Kumar Sharma

- 008 **Augmented Intelligence with Ontology of Semantic Objects**  
*A.C.M. Fong, G. Hong and B. Fong*
- 014 **A Method of Designing Home Automation Control System (HACS) Using Virtual Assistant And Mobile Application**  
*M. Sundarramurthi, A. M. Anjana Sundari and Anandhi Giridharan*
- 015 **Genetic Algorithm Based Bidirectional Recurrent Neural Network for LIBOR Prediction**  
*Xiao Tan*
- 031 **Tchebichef Image Watermarking based on 2-level Haar Wavelet**  
*Andik Setyono and De Rosal Igantius Moses Setiadi*
- 032 **Speech Emotion Recognition of Indonesian Movie Audio Tracks based on MFCC and SVM**  
*Muljono Muljono, Muhammad Ramadhan Prasetya, Agus Harjoko and Catur Supriyanto*
- 074 **Role of Blockchain in IoV: issues, challenges and opportunities**  
*Mithilesh Sathiyarayanan, Mohd Abdul Ahad and Gautami Tripathi*

Session 1.2	General Papers
Date/Time	December 12, 2019 (Thursday) / 11:30 – 12:30
Venue	Class room 3
Chair(s)	Dr. Ramesh Belavadi

- 017 **Network-Coded SD-WAN in Multi-Access Systems for Delay Jitter Control**  
*Sri Pramodh Rachuriy, Ahtisham Ali Ansariy, Deepaknath Tandur and Arzad A. Kheraniy*
- 045 **Throat Detection and Health Classification using Neural Network**  
*Rogelio Ruzcko Tobias, Luigi Carlo De Jesus, Matt Ervin Mital, Sandy Lauguico, Argel Bandala, Ryan Rhay Vicerra and Elmer Dadios*
- 080 **Cognitive Behavior Analysis Of Adolescents**  
*Malvika goyal, Archana Singh and Aarushi Agrawal*
- 111 **Sentiment Analysis Using Support Vector Machine**  
*Aditya Gupta, Tanupriya Choudhury and Abha Thakral*
- 128 **Aqua: Water Level Audit and Alimentation for Smart City**  
*Mayamin Hamid Raha, Sakib Ahmed and Debashish Paul*
- 150 **Embedding Framework for Identifying Ambiguous Words in Code-Mixed Social Media Text**  
*Shashi Shekhar, Dilip Kumar Sharma and M.M. Sufyan Beg*
- 018 **Fake Review Detection on Yelp Dataset Using Classification Techniques in Machine Learning**  
*Andre Sihombing and A.C.M. Fong*

Session 1.3	Internet of Things
Date/Time	December 12, 2019 (Thursday) / 11:30 – 12:30
Venue	Class room 4
Chair(s)	Dr S K Niranjana

- 050 **Digitalisation of Healthcare with IoT and Cryptographic Encryption against DOS Attacks**  
*Prajakta Kamble and Aruna Gawde*
- 038 **Accurate decision-making system for mining environment using Li-Fi 5G Technology over IoT Framework**  
*Viswanathan P and Mohammad Shareef Mekala*
- 081 **Weaponisation of AI**  
*Malvika Goyal*
- 085 **Artificial Intelligence in Sports**  
*Sahil Chaudhary and Archana Singh*
- 094 **Deploying an e-commerce website using AWS**  
*Shivanshi Shokeen and Archana Singh*
- 117 **A Query Expansion Approach for Improving Document Retrieval**  
*Dilip Kumar Sharma, Rajendra Pamula and D S Chauhan*
- 023 **Multi-prong Framework Toward Quality-Assured AI Decision Making**  
*G. Y. Hong and A.C.M. Fong*

Session 2.1	Intelligent Computing 2
Date/Time	December 12, 2019 (Thursday) / 13:30 – 14:30
Venue	Class room 2
Chair(s)	Dr. Dilip Kumar Sharma

- 053 **An Automated method of Optic Disc Detection from Retinal Fundus Images**  
*Varun P Gopi, Nija K S and Anitha V S*
- 054 **Instance Segmentation in Remote Sensing Imagery using Deep Convolutional Neural Networks**  
*Anirudh Potlapally, Potluri Sai Rohit Chowdary, S.S. Raja Shekhar, Nitin Mishra, Chella Sri Venkata Divya Madhuri and A.V.V. Prasad*
- 063 **Utilization of Genetic Algorithm in Classifying Filipino and Korean Music through Distinct Windowing and Perceptual Features**  
*Matt Ervin Mital, Rogelio Ruzcko Tobias, Argel Bandala, Robert Kerwin Billones and Elmer Dadios*
- 068 **A study on Digital Image forgery techniques and its detection**  
*Chaitra B*
- 069 **DEVSR- Dynamically Enhanced Video Super-Resolution**  
*Yashraj Singh, Vishal Kumar and Mithileysh Sathiyarayanan*
- 070 **Understanding and Using Factor Scoring Methods for Ranking of Countries based on Health Indicators: A Data Science Approach**  
*Mithileysh Sathiyarayanan, Chris Preeti and Martin Luther William*
- 109 **Understanding the Emergence and Importance of Blockchain-based Cyber-physical Social Machines: A Proposal**  
*Mithileysh Sathiyarayanan and Gautami Tripathi*

Session 2.2	Special Session
Date/Time	December 12, 2019 (Thursday) / 13:30 – 14:30
Venue	Class room 3
Chair(s)	Dr. Ramesh Belavadi

- 052 **Simple Information Retrieval and Bibliometrics to Check the Reliability of an Article Indexing**  
*Harry Tursulistyono Yani Achan*
- 058 **Design and Implementation of Portable Healthcare Chair (PHC) Based on Ergonomics**  
*Rajdeep Chowdhury, Kaushal Kumar Poddar, Md Adil Alam, Sukhwant Kumar, Neyaz Ahmed and Madhurima Som*
- 066 **ALTAR: Area-based Localization Techniques using AoA and RSS measures for Wireless Sensor Networks**  
*Kiran Kumar Mamidi*
- 071 **Visual Auxiliary Solutions to Analyse Social Media Data for Improving Marketing & Business**  
*Mithileysh Sathiyarayanan*
- 142 **Comparative Analysis Amid National and International MPLS Local Loop Optimization and Commercial Impact**  
*Sudip Sinha, Rajdeep Chowdhury, Anirban Das and Amitava Ghosh*
- 122 **IT TRENDS AND WEB ENGINEERING**  
*Samaira Mendiratta*

Session 2.3	Intelligent Computing/Software Engineering
Date/Time	December 12, 2019 (Thursday) / 13:30 – 14:30
Venue	Class room 4
Chair(s)	Dr S K Niranjan

- 060 **Crypto-governance in Stock Exchanges: Towards Efficient and Self-regulated Trading System**  
*Richard Richard, Agung Trisetjarso, Wayan Suparta, Chul-Ho Kang and Bahtiar Saleh Abbas*
- 072 **Visual Analysis of Predictive Policing to Improve Crime Investigation**  
*Mithileysh Sathiyarayanan*
- 073 **Feature Selection Using Heterogeneous Data Indexes: a data science perspective**  
*Mithileysh Sathiyarayanan and Divyansh Saxena*
- 012 **To What Extent Do South African Software Organizations Lack Project Success Factors?**  
*Robert*
- 049 **Early determination of Optimal Test Flows with Requirements Analytics**  
*Mukundan Sundararajan, Priti Srikrishnan, Kiran Nayak and Siddharth K Saraya*
- 115 **Role of Big Data Analytics In Banking**  
*Tushar Gupta, Naman Gupta, Ankit Agrawal, Aksh Agrawal and Kartik Kansal*



Session 3.1	General Papers
Date/Time	December 13, 2019 (Friday) / 09:45 – 10:45
Venue	Class room 2
Chair(s)	Dr. Mukundan Sundararajan

- 098 **A review on Network security challenges and the Internet of Things (IoT)**  
*Madhu Khurana and Tanupriya Choudhury*
- 105 **IoT-based Google Duplex Artificial Intelligence Solution for Elderly Care**  
*Mithileysh Sathiyarayanan, Divya Ganesh, Gayathri Seshadri, Sumathi Sokkanarayanan and Sharanya Rajan*
- 107 **Work-in-Progress: A Theoretical Model of IoT-based Two-Wheeler Auto-Indicator System to Advance Traffic Violation**  
*Mithileysh Sathiyarayanan, Balasubramaniam Anbu, Bharathwaj Krishnan, Sumathi Sokkanarayanan*
- 148 **OCR Recognition System for Degraded Urdu and Devnagari Script**  
Sobia Habib, Manoj Kumar Shukla and Rajiv Kapoor
- 153 **Extractive TextSummarization – An effective approach to extract information from Text**  
*Asha Rani Mishra, Dr. V.K Panchal and Dr. Pawan*
- 136 **A Review on the Academic performance analysis of higher Education Students Using Data Mining Techniques**  
*Abeje Orsango Enaro and Sudeshna chakraborty*
- 137 **Video Analytics Based Identification and Tracking in Smart Spaces**  
*Archit Khatri, Tanupriya Choudhury, Abha Thakral and Thipendra Pal Singh*

Session 3.2	General Papers
Date/Time	December 13, 2019 (Friday) / 09:45 – 10:45
Venue	Class room 3
Chair(s)	Dr. Dilip Kumar Sharma

- 106 **Quality Detection of Fresh Fruits and Vegetables to Support Horticultural and Agro-industri**  
*Mithileysh Sathiyarayanan, Shalini Gnanavel, Saranya M, Kanmani E and Sumathi Sokkanarayanan Mail*
- 138 **A Brief Case Study on Li-Fi Technology**  
*Nidhi Soni, Mayank Mohta, Tanupriya Choudhury and Thipendra Pal Singh*
- 139 **ICT- The Smart Education System in India**  
*Mantosh Kumar, Subhas Chand and Tanupriya Choudhary*
- 140 **Crime Analysis using Text Mining**  
*Harpreet Kaur, Tanupriya Choudhury and Subhash Chand Gupta*
- 143 **A Complete Study of Methodology of Hand Gesture Recognition System for Smart Homes**  
*Srishti Nigam, Sakshi Dhasmana and Tanupriya Choudhury*
- 152 **An Analysis of Structural Properties in Social Network Links in Educational Data Mining**  
*Rohini A and Sudalaimuthu T*