



ಬಿ.ಎಂ.ಎಸ್. ತಾಂತ್ರಿಕ ಮತ್ತು ನಿರ್ವಹಣಾ ಮಹಾವಿದ್ಯಾಲಯ
(ವಿ.ಟಿ.ಯು. ಅಡಿಯಲ್ಲಿನ ಸ್ವಾಯತ್ತ ಸಂಸ್ಥೆ)

BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT
(Autonomous Under VTU)

RESEARCH COMPENDIUM 2020

**DEPARTMENT OF INFORMATION
SCIENCE & ENGINEERING**

ISE Dept.
Transform Here

Department of Information science and Engineering (2020)

VISION

Emerge as centre of learning in the field of information science & engineering with technical competency to serve the society.

MISSION

To provide excellent learning environment through balanced curriculum, best teaching methods, mentoring and industry institute interaction.

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INTERNATIONAL JOURNALS with Scopus Indexed	
3.1	Intrusion prediction and detection with deep sequence modeling, International Symposium on Security in Computing and Communication.
3.2	A review of non-invasive BCI devices, International Journal of Biomedical Engineering and Technology.

THE EDITORIAL BOARD

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Prof. Mahalakshmi S
P. Ashok Kumar

About Institution

In view of the growing demand for technical education and with the goal of establishing a premier technical education on par with international standards, a technical institution by name 'BMS Institute of Technology and Management' was established in 2002. Currently, BMSIT&M offers eight UG, three PG programs and Ten programs have been recognized as research centers under VTU. All our eligible programmes are NBA accredited and NAAC accredited with 'A' grade. BMSIT&M considers research to be of equal importance as academics for the betterment of an institution. Research culture has been embraced well by the faculty members and research scholars at BMSIT&M. In this report, we present an overview of the research articles of Information Science and Engineering, BMSIT&M.

Vision

“To emerge as one of the nation’s finest technical institutions of higher learning to develop engineering professionals who are technically competent, ethical and environment friendly for betterment of the society.”

Mission

“Accomplish stimulating learning environment through high quality academic instruction, innovation and industry - institute interface.”

Department of Information Science and Engineering

Department is established in the year 2010 with an sanctioned intake of 60 and enhanced to 120 from 2018-19 and enhanced to 180 from 2019-20 which is affiliated to VTU, recognized by AICTE. The department strives to be a center for excellence in the field of information Science with dedicated faculty, highly motivated students, state-of-the-art facilities and an innovative teaching-learning environment. The department runs UG - BE in information Science and Engineering and M.Sc. (Engg) and Ph.D Program. The UG - BE Program (ISE) was accredited by the National Board of Accreditation (NBA),New Delhi . The Department has adopted learner centric approach to groom the students in right direction. The Department has more than 200+ research articles published in various national/international conferences and Journals. Our Students has consistently demonstrated the excellent placement track record of above 90 percent. Our Students have demonstrated a high level of success at pursuing post graduate studies at top universities of the world as per QS World University Rankings. Few of our Students have turned into successful entrepreneurs and running their successful business in the areas of Software Services and Allied areas and department runs Jnan IT consulting services under CIPRAC.

From HOD's Desk

It is my pleasure to present the forth edition of Research Compendium of the Department of Information Science & Engineering. The main objective of the research compendium is to collate all the research contributions by our faculty members and students. It is evident that the Department is in-line with the on-going activities by the faculty members to cater the needs of industry to fill the gap between Industry and Institute. I hope this compendium continues its service to help the student community & faculty fraternity and attract more readers and provide an illuminating platform for the research community. I appreciate the efforts endorsed by all the faculty members and students of the department for their contribution towards the fourth edition of Department Research Compendium. I wish all the research community mmebers for their active participation and keep continuing.

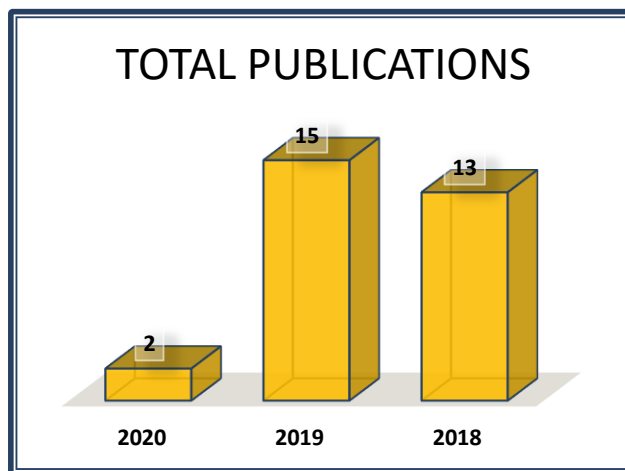
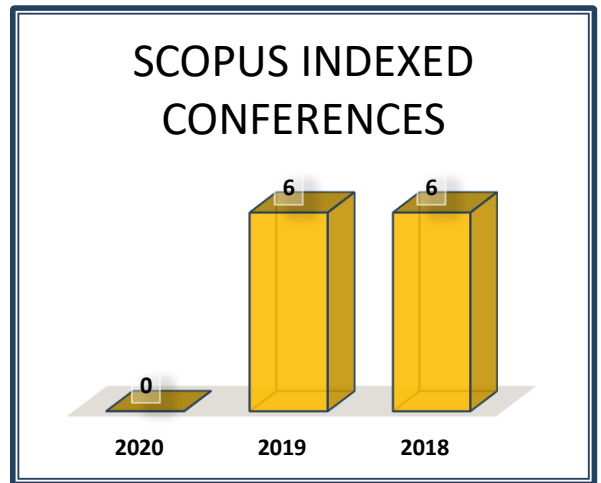
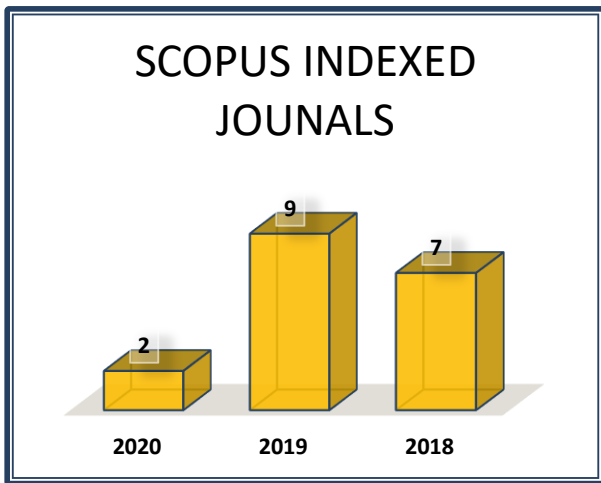
Dr. Pushpa S K

Editorial Statement

It's my pleaseure to be part of Editorial team for this Research Compendium 2020, published by the Department of Information Science & Engineering. The main objective of this research compendium is to motivate all the stakeholders and the research community to get themselves actively involved in research. It comprises of publication summary for past four years, citation details of faculty, and publications in Scientific Journals/Conferences for the academic year 2020. I whole heartedly thank all the faculty members for their contribution towards research compendium 2020.



Prof. Mahalakshmi S
Research Coordinator

1. RESEARCH PUBLICATIONS SUMMARY



Department of Information science and Engineering

RESEARCH PUBLICATIONS FOR THE YEAR 2020

INTERNATIONAL JOURNALS with Scopus Indexed	
3.1	<p>Prof. Swetha M S, Assistant Professor Scopus ID: 57198883483</p>
	<div style="border: 1px solid #ccc; padding: 10px;">  <hr/> <p>Find a journal Publish with us <input type="text" value="Search"/></p> <hr/> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>International Symposium on Security in Computing and Communication</p> <p>↳ SSCC 2019: Security in Computing and Communications pp 11–25 Cite as</p> </div> </div> <hr/> <p>Home > Security in Computing and Communications > Conference paper</p> <h3 style="margin: 0;">Intrusion Prediction and Detection with Deep Sequence Modeling</h3> <p style="margin: 0;">Gaurav Sarraf & M. S. Swetha</p> <p style="margin: 0;">Conference paper First Online: 26 April 2020</p> <p style="margin: 0;">553 Accesses 2 Citations</p> <p style="margin: 0;">Part of the Communications in Computer and Information Science book series (CCIS, volume 1208)</p> <hr/> <h4 style="margin: 0;">Abstract</h4> <p style="margin: 0;">With the wide adoption of the internet and its applications in recent years, many antagonists have been exploiting information exchange for malicious activities. Intrusion detection and prevention systems are widely researched areas, rightly so being an integral part of network security. Adoption of IDSs and IPSs in networks have shown significant results while expanding research from software solutions to hardware-based solutions, promoting such defensive techniques even further. As with all recent computing trends, Machine Learning and Deep Learning techniques have become extremely prevalent in intrusion detection and prediction systems. There have been attempts to improve state of the art, but none is projecting any significant improvement over the current systems. Traditional systems alert the user after an intrusion has occurred, steps can be taken to stop further expansion of the intrusion, but in most cases, it is too late. Hence catering to this issue, this paper proposes system call prediction using a Recurrent Neural Network (RNNs) and Variational Autoencoding modelling techniques to predict sequences of system calls of a modern computer system. The proposed model makes use of ADFA intrusion dataset to learn long term sequences of system-call executed during an attack on a Linux based web server. The model can to effectively predict and classify sequences of system-calls most likely to occur during a known or unknown (zero-day) attacks.</p> </div>

INTERNATIONAL JOURNALS with Scopus Indexed	
3.2	<p>Veena N, Associate Professor Scopus ID: 57203956596</p> <hr/> <p style="text-align: right;"><i>Int. J. Biomedical Engineering and Technology, Vol. 34, No. 3, 2020</i> 205</p> <hr/> <h2 style="text-align: center;">A review of non-invasive BCI devices</h2> <hr/> <p style="text-align: center;">Veena N*</p> <p>Information Science and Engineering, B.M.S. Institute of Technology and Management, Avalahalli, Yelahanka, Bangalore-560064, India Email: veena_guruprasad@rediffmail.com *Corresponding author</p> <p style="text-align: center;">Anitha N</p> <p>Information Science and Engineering, East Point College of Engineering and Technology, Virgonagar (post), Bidarhalli, Bangalore-560049, India Email: anitha_nmurthy@yahoo.com</p> <p>Abstract: BCI provisions humans beings to control various devices with the help of brain waves. It is quite useful for the people who are totally paralysed from neuromuscular diseases such as spinal cord injury, brain stem stoke. BCI permits a muscular free channel for conveying the user intent into action which helps the people with motor disabilities to control their surroundings. Various non-invasive technologies like electroencephalogram (EEG), magnetoencephalography (MEG), functional magnetic resonance imaging (fMRI), etc. are available for capturing the brain signal. In this article, various non-invasive BCI devices are analysed and nature of signals captured by it are reported. We also explore the use of signals for diseases diagnosis, their features and availability of those devices in the market.</p> <p>Keywords: electroencephalogram; EEG; magnetoencephalography; MEG; functional magnetic resonance imaging; fMRI; non-invasive; psychological; physiological diseases.</p> <p>Reference to this paper should be made as follows: N, V. and N, A. (2020) 'A review of non-invasive BCI devices', <i>Int. J. Biomedical Engineering and Technology</i>, Vol. 34, No. 3, pp.205–233.</p> <p>Biographical notes: Veena N obtained her Bachelor in Engineering (BE) in Computer Science and Engineering from the Visvesvaraya Technological University. Then, she obtained her Master's in Software Engineering (SE) from the Visvesvaraya Technological University. Presently, she is pursuing her PhD from the Visvesvaraya Technological University.</p> <p>Anitha N obtained her Bachelor in Engineering (BE) in Computer Science and Engineering from the Visvesvaraya Technological University. Then, she obtained her Master of Engineering (ME) in Information Technology from the U.V.C.E. and PhD from the Visvesvaraya Technological University in 2016.</p> <hr/>

Program Outcomes

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4. Conduct investigations of complex problems: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities, with an understanding of the limitations.

PO6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. Communication: Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.



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