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Dept of Computer Science and Engineering

Message from the Head of the Department

I am happy to present this edition of our departmental newsletter. The content for this newsletter is the result of effort put by our students and faculty during the continuation of pandemic time. Even though it is a lot of effort in gathering data on what information is worth reporting every six months, the reactions from our colleagues, alumni and students have made it worthwhile.



Our faculty and students have worked hard and are updated with the new online working pattern, in this pandemic time, to carry out the academics and department activities related to research, bringing new research grants, new research thrusts and reaching innovative research in teaching by creating new courses. This version of newsletter gives us an opportunity to take a stock on how we are progressing towards achieving excellence, in this online mode, in diverse domains of Computer Science and Engineering. We have conducted events, talks and attended events in this online mode and are striving for continued progress and betterment of our research,

consultancy, education and service to community which are very important to us. Our constant collaboration with various industry leaders has furthered our ability in research and development.

-Dr Ramakanth Kumar P

Vision

To achieve leadership in the field of Computer Science & Engineering by strengthening fundamentals and facilitating interdisciplinary sustainable research to meet the ever-growing needs of the society.

Mission

- To evolve continually as a centre of excellence in quality education in computers and allied fields.
- To develop state-of-the-art infrastructure and create environment capable for interdisciplinary research and skill enhancement.
- To collaborate with industries and institutions at national and international levels to enhance research in emerging areas.
- To develop professionals having social concern to become leaders in top-notch industries and/or become entrepreneurs with good ethics.

MoU signed by the Department

RVCE - Honeywell Technology Solutions Lab Pvt Ltd

An MoU was signed between RVCE and Honeywell Technology Solutions Lab Pvt Ltd on 8th Feb 2021 with validation up to 2026.

RVCE - Hayagriva Software Pvt Ltd

An MoU was signed between RVCE and Honeywell Technology Solutions Lab Pvt Ltd on 7th July 2021 with validation up to 2024. Hayagriva is a company that inter alia, creates software products and solutions and has, over the past few years, created the world's only CCTV video footage auditing, smart backup and standardized intelligent reporting software called COM-SUR. Hayagriva supports RVCE to establish Centre for CCTV Research" at RVCE campus which will be used for learning and research. The objectives of this understanding includes promoting greater interaction and working together to achieve academic, research and strategic partnership objectives to establish interaction to improve industrial exposure, technical knowhow, identifying real challenges faced by the industries, arranging expert talk/seminar/workshops/summer internship/conference with the help of students and experts from industries or research, support innovation and start-up activities by providing mentorship and support faculty exchange programs for expert lectures/seminars/workshops and other academic activities.

Events conducted by the department

Three days hands-on workshop on ECL Programming

A Hands-on workshop on "ECL Programming" was organized on 5th, 12th & 19th May 2021. It was delivered by Bahar Fardanian, Technology Evangelist at LexisNexis Risk Solutions Atlanta, Georgia, United States and Arjuna Chala Sr. Director of Emerging Technology, HPCC Systems Alpharetta, Georgia, United States. ECL is the Enterprise Control Language designed specifically for huge data projects using the HPCC Systems platform. Its extreme scalability comes from a design that allows us to leverage every query we create for re-use in subsequent queries as needed. The session briefed on the HPCC systems architecture, basic operations in ECL and some advance features of ECL.

Three days Online Covid Care Program on Immunity Boost & Prevention with Meditation, Breath and Yoga

A three days Online Covid Care Program on "Immunity Boost & Prevention with Meditation, Breath and Yoga" was organized during 21-23 May 2021. It was organized under the guidance of Dr. Badari Nath K and Prof. Jyothi Shetty. Covid-19 pandemic has thrown light on the importance of good health

and immunity. Yoga, meditation and breathing techniques are some of the most effective tools to fight against the physical and mental distress brought by the pandemic. These techniques can boost immunity and aid in the mental and emotional care of Covid-19 patients and those who have recovered. The relaxation brought by these techniques also aid the healing process. The session encouraged students to incorporate such practices into their daily routine.

Five Day Online National Level workshop on Fundamentals of Quantum Computing and Applications

A five Day Online National Level workshop on "Fundamentals of Quantum Computing and Applications" was organized from 1 March 2021 to 5 March 2021. It was organized by the Centre for Interdisciplinary Research in Quantum Information and Technology (CIRQuIT) and department of Computer Science and Engineering, RVCE. Quantum computing is a type of computation that harnesses the collective properties of quantum states to perform calculations. Though, current quantum computers are too small to outperform usual (classical) computers for practical applications, they are believed to be capable of solving certain computational problems, such as integer factorization (which underlies RSA encryption), substantially faster than classical computers. With the promising results and wide scope for development in the field, it has gained a lot of attention from the researchers. The session briefed about the basics of quantum computing and some applications of the same.

Webinar on Data, Computing and Success

A webinar on "Data, Computing and Success" was organized on 24 April 2021. It was presented by Mrs. Renuka Prasad and Mr. Srikanata Bhaskara. Data has become one of the most valuable resources in the world. It has exploded in volume, growing exponentially to approximately 33,000 exabytes, or 33 zettabytes at the end of 2018 according to a study. With such high amounts of data, the need for efficient and faster ways of computing data has become essential. The session discussed on the progress made in the field and the future developments.

Webinar on Machine Learning Applications and Research Challenges

A webinar on "Machine Learning Applications and Research Challenges" was organized on 28 May 2021. It was presented by Dr. Manesh Kokare, and organized under the guidance of Prof. Jyothi Shetty. Machine learning is a core sub-area of Artificial Intelligence (AI). ML applications learn from experience (or to be accurate, data) like humans do without direct programming. When exposed to new data, these applications learn, grow, change, and develop by themselves. The past few years have seen tremendous development in the field. ML is being used in applications across all domains. Despite the progress, the research in the field is hit with some challenges such as lack of proper training data. A high-level overview of ML and the challenges ahead were discussed in the session which was attended by undergraduate students in the college.

Two days Workshop on Python for Data Analytics

A two-day Workshop on “Python for Data Analytics” was organized on 12th to 13th Feb 2021. It was organized by the department of Computer Science and Engineering, RVCE. The session was aimed towards post graduate students. The session briefed on how Python can be used to analyze data. The basics of Python to exploring many different types of data were discussed. The students learnt how to prepare data for analysis, perform simple statistical analysis, create meaningful data visualizations, predict future trends from data, and more. Some key python libraries for data analytics like Pandas, Numpy were also discussed.

Invited Talk on Soft Sets - Introduction, Properties and operations

A session on “Soft Sets- Introduction, Properties and operations” was organized on 19 June 2021. It was hosted by Mr. Basavaraj M. Soft set theory is a generalization of fuzzy set theory, that was proposed by Molodtsov to deal with uncertainty in a parametric manner. A soft set is a parameterized family of sets - intuitively, this is "soft" because the boundary of the set depends on the parameters. An introduction to soft sets, their properties and operations were discussed on a high level. The session was mainly aimed towards the undergraduate students.

Faculty achievements

Dr. Shanta Rangaswamy



- Session chair for ICICITES – 2021 (International Conference on Intelligent Computing in Information Technology for Engineering System) held by SKN Sinhgad College of Engineering, Korti, Pandharpur on 25th and 26th June 2021.
- Received Certificate of Appreciation by NPTEL Text Translation, for performing Quality Check of the translated file (e content) in Kannada language of the course named “Design Practice”.

Dr. Vishalakshi Prabhu H



Resource person for AICTE-ISTE sponsored Induction program on "Next generation wireless communication: 5G and beyond" during May 2021.

Dr. Sandhya S



Identified and Certified as Primary Evaluator in Toycathon 2021, conducted by AICTE, Ministry of Education Innovation Cell.

Research and Consultancy Projects

Research projects:

Assessment of Privacy Protection in the encrypted DNS Protocols (DoH/DoT) and extension of the analysis of high speed networks is a project that was sanctioned in January for the duration 2021-2022 by funding agency named Contract for Acquisition of Research Services (CARS). The associated faculty being Dr. Minal Moharir, Dr. Deepamala N and Dr. Ramakanth Kumar P.

Consultancy projects:

Institution Consultancy Projects Charges for Technical evaluation of the prospective candidate's data is a project that was sanctioned in January by funding agency named ASM Technologies Limited and handled by Dr. Ramakanth Kumar P, HoD, CSE.

Research and Publications

Conferences -

- Dr. Vinay Hegde, Dr. Satish Babu, Vihaan Nama, “Sentiment Analysis of Movie Review: A comparative study between Naïve bayes classifier and Rule based approach,” *International Conference on Innovative Trends in Information Technology (ICITIT-21)*, IIIT Kottayam, Kerala, 11th and 12th February 2021.
- Dr. Shobha G, Prof. Sneha M, Dr. Kotaro Kotaoka presented their book chapter titled “BO-RL: Buffer Optimization in Data Plane using Reinforcement Learning,” at the *35th International Conference on Advanced Information Networking and Applications (AINA-2021)*, Ryerson University, Toronto, Canada, May 12th to 14th, 2021

Journal Publications -

- Dr. Vinay Hegde, “Machine Learning Based estimation of energy optimization of residential building,” *GIS Science Journal*, volume 8, issue 6, June 2021.

- Dr. Praveena T, "Social-sine cosine algorithm-based cross layer resource allocation in wireless network," *International Journal of Electrical and Computer Engineering (IJECE)*, volume 11, Feb 2021.
- Dr Poonam Ghuli, Aiswarya, "Cross-Application Development on Radio Intelligent Controller Platform," *HTL journal*, issue 5, May 2021.
- Dr. Shanta Rangaswamy
 - "An overview of Network Time Protocol," *HTL journal*, issue 6, June 2021.
 - "A Survey on Low Power Clock Tree Design," *HTL journal*, issue 6, June 2021.
 - "Intelligent Traffic Management: A Review of Challenges, Solutions, and Future Perspectives," *Transport and Telecommunication Journal*, Feb 2021.
 - "Novel Approach to Predict the Travel Time based on Historical Data using ML Techniques," *International Journal of Computer Science and Information Security, IJCSIS*, Feb 2021.

Awards received by Faculty



- Dr. K. Badari Nath received the "Best Teacher Award" from ISTE-RVCE Chapter for the year 2020-2021.

Student Activities

Our department's pride lies in its multi-talented students. They are a part of various activities apart from academics such as cultural and technical clubs. Popular clubs include CARV (for Theatre arts), Alaap (for musicians), Footprints (for dance lovers), etc. These clubs are active all-round the year and are quite popular amongst other Engineering colleges. The department encourages and provides total support to the students for their all-round development. A lot of students are active members of these clubs and have as well won name and fame while competing against various colleges across the nation.

Students interested in various interdisciplinary areas are encouraged to join some of the innovative technical clubs. From college level to international level, the students of our department have brought laurels to the institution. The college and the department, supports them with technical as well as financial aids. Dedicated mentors for each of the clubs help in catering to the needs of the team. These clubs conceive and develop everything from racing cars to mini satellites. Our

students have been an integral part of these clubs since their conception.

Our students are also part of various other activities organized by other clubs such as Rotaract and NSS and actively participate in activities including Blood donation camps, Paper drives, Akshara, Utsarga Marathon etc.

Student Achievements

Besides academics, our department is widely known for its multi-talented students. We see a large number of students from the department represent college at collegiate, national and international Levels in different domains. The department gives its complete support and encouragement to all its students to participate in these activities. The students of our department have continued to make best use of opportunities even amidst the pandemic.

Here are a few achievements by the students.

- **Avilash M**



Avilash M, VI semester student was the winner at Code for Good Challenge. Code For Good is a hackathon organized by JPMorgan Chase & Co. on 19th June where he was teamed with 6 students from different colleges across India and provided with a problem statement by Claylab foundation. Ten teams of team size of around 6-7 developed solution to the problem statement provided. His team created a website, chrome extension, android application and server side programming within 1 day and their solution was accepted as it was exactly meeting the requirements of the problem statement and went on to win the Hackathon. They were also mentored by employees of JPMC who provided valuable ideas and guided them whenever they were stuck. Avilash also mentioned that it was an amazing experience to work with different students with different mindset and win the hackathon.

- **Aditya Y Jeppu**



Aditya Y Jeppu, IV semester student has authored and presented a paper titled “Learning model based safety critical system engineering – the fun way” in the XVII Control Instrumentation System Conference (CISCON) organized by Department of Instrumentation and Control engineering of Manipal Institute of Technology at MIT, Manipal.

- **Vihaan Nama**



Vihaan Nama, IV semester student was the Guest speaker at IEEE workshop, where he volunteered to teach over 250+ students in the “Machine Learning and its Applications” webinar hosted by IEEE-WIE in April. Taught for over 2 hours and explained about Numpy, Pandas and Matplotlib libraries while also going through basics of Data Pre-processing and laying the importance of it in Machine Learning.

He has published a paper titled “Sentiment Analysis of Movie Reviews - A Comparative Study between the Naive-Bayes Classifier and a Rule-Based Approach” along with Dr. Vinay Hegde, Associate professor and Dr. Satish Babu in 2021 International Conference on Innovative Trends in Information Technology (ICITIIT) in Feb 2021. This paper aims to conduct sentiment analysis of reviews of movies by using the Naive-Bayes algorithm and compare the results to that of a Rule-Based Approach using the AFINN-111 sentiment dictionary.

He was a Blockchain and Web Development (MEVN STACK) Intern at Covenant and worked on creating an online dispute resolution system.

- **Pooja Rajesh, Praneeta Immadisetty and Akshita Gupta**



Pooja Rajesh, Praneeta Immadisetty and Akshita Gupta are all IV semester students who have been working on the IISc Spire Lab Project titled "Speech Recognition in Agriculture & Finance for the poor" since April under the guidance of Dr. Shobha G, Professor, CSE and Ravishankar Holla, Assistant professor, ECE. Speech recognition in agriculture and finance for the poor is an initiative predominantly to create resources and make them available as a digital public good in the open-source domain to spur research and innovation in speech recognition in nine different Indian languages in the area of agriculture and finance. Their role in the project was in dataset preparation for Telugu language relating to agriculture, finance, healthcare and general topics through collection of links and text using web scraping and in building NLP language models for next word prediction and determination of a better model for our telugu corpus based on perplexity score. The contribution has been recognized in the official website of the project as well.

Articles by faculty and students

Article 1:

Computer Science as seen in nature!!

By Dr. Deepamala.N, Associate Professor, Department of Computer Science and Engineering, RV College of Engineering, Bengaluru.

Computer Science students learn many concepts from a simple variable to complex procedures. Have you ever wondered, everything you read is already existent or is derived from nature around!! Let's see some of them.

Ever felt Fibonacci series program in Programming in C difficult?? See around, you see Fibonacci series and golden ratio everywhere.

In Sunflower

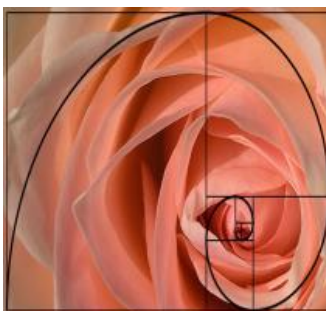


A Shell



Src: The nature of design: the Fibonacci sequence and the Golden Ratio

A Rose



Src: Geometry in Nature: the Fibonacci Sequence



Src: The Miracles of Mathematics will Make Your World More Vibrant

Do you know **Stack** or Sea Stack from Geology??

Stacks typically form in horizontally-bedded sedimentary or volcanic rocks, particularly on limestone cliffs.



Src: Dun Briste, a spectacular sea-stack, estimated to be approximately 50 metres (165 ft) in height, stands 80 metres (260ft) off Downpatrick Head, in the town-land of Knockaun, east of Ballycastle, Ireland.

Queues!! Will humans ever learn??



Src: teluguone.com



Src: flickr.com

Have you seen a **binary tree**???



Network in leaves



Src: *Nature's Network* by Bishy-Waya on DeviantArt

Networks is not just LAN and WAN.....

Neural Network



Src: *Understanding Neural Networks*



Src: <https://pxhere.com/en/photo/936294>

Cloud computing really??

Blood vessel Network



Src: *Blood Vessels* | The Franklin Institute (fi.edu)



Src: *Cloud computing is the new normal says report - DCD* (datacenterdynamics.com)

Nature doesn't need people, people need nature, especially Computer Science Engineers!!

The Editor's note

We thank our department for giving us the opportunity to proudly present the 7th issue of our newsletter Enqueue().

In here, we present to you a glimpse of the various activities and events which were organized and held at our department in the months of January to June, 2021.

We also present to you our faculty's outstanding achievements, research and consultancy projects and their publications in various reputed journals and conferences. Finally, we showcase various achievements and awards won by our highly talented students. We thank all our teachers and students who have kindly obliged to contribute articles and other content.



-Prof. Pavithra H
*Asst. Professor @
CSE department*

A highly talented, creative, enthusiastic and hardworking student with interest in dance, crafts, social work and exploring new things.



Shivani C H
*Student @
CSE department*

Write to us:

We sincerely hope that you found our department's newsletter informative and enjoyable. Do provide us with your valuable feedback by writing to us at enqueue@rvce.edu.in.