



Kristu Jayanti College

AUTONOMOUS

Bengaluru

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DEPARTMENT OF COMPUTER SCIENCE (UG)

INTERFACE

2K23-2K24



ISSUE 11 VOL : 1

FROM THE EDITORIAL TEAM

Dear Readers,

Welcome to 2024 issue of Interface, the Computer Science (UG) Department's Newsletter.

This issue covers all the activities happened in the department in the year 2023-2024. The department witnessed a plethora of activities ranging from organizing conferences and exhibitions, going for industrial visits, conducting workshops, social outreach programs to name a few. As the editors, we have tried to bring a glimpse on each of the programs organized by the department. Due care is made to highlight the essence of each program. Apart from reports about the various activities, the newsletter includes articles contributed by students, faculty members and alumni.

We would like to thank all the people who contributed to bringing out this issue. We hope that you will enjoy reading this issue.

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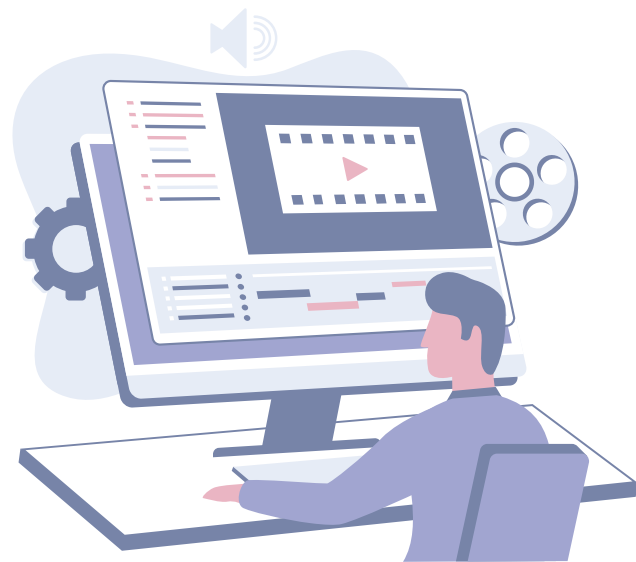
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MESSAGE



Fr. Dr. Augustine George
Principal

The transformative influence of technology on human existence is undeniable, reshaping the fabric of our daily lives and societal structures. The advent of automation, instant information access, and revolutionary communication and transportation technologies has propelled us into an era of unprecedented convenience and efficiency. However, this technological surge is not without its challenges, as concerns over privacy, security, and potential job displacement loom large.

Within educational institutions, particularly the Computer Science department, there exists a pivotal role in steering technological initiatives. At Kristu Jayanti College, the department stands out for its proactive approach, swiftly embracing emerging technological trends. Notably, its contribution to establishing a robust IT infrastructure has played a crucial role in facilitating seamless academic learning and content delivery, particularly evident during the transition to online and offline learning modes.

In celebrating the release of the eleventh edition of the Newsletter - Interface, I extend my heartfelt congratulations to the department. I express my optimism for their continued success in fostering a culture of creativity and excellence in technological education. May their endeavors inspire future generations to push the boundaries of innovation and contribute meaningfully to the ever-evolving field of technology.

FROM THE DEAN



Dr. Calistus Jude A.L.
Dean, Faculty of Sciences

I congratulate the students and faculty members of the Department of Computer Science (UG) on their outstanding achievements during this academic year. Our students have excelled in various competitions, hackathons, projects and publications, showcasing their exceptional talent and dedication. The faculty members have made significant contributions to their respective fields, publishing papers in top-tier conferences and journals and many patents being published and granted.

The efforts of the department in organising several events and activities during this academic year, including invited technical talks, workshops, collaborative activities and competitions, is to be appreciated. Such events have provided opportunities to the student community to enhance their skills and knowledge. The alumni meetings were a great opportunity for our former students to share their experiences and motivate the present batch of students.

I am happy that the department has brought out the annual issue of its newsletter 'Interface' to highlight the activities of the department. The contents are informative and comprehensive, featuring the achievements of both students and faculty members, showcasing their talents and contributions to the field of computer science.

The department remains committed to providing the best possible education and training, equipping students with the skills and knowledge they need to excel in their career. The contributions are invaluable, and we look forward to achieving even greater success in the future. Appreciations to all the student and staff editorial team for their hard work and dedication towards bringing out this issue of Interface.

ABOUT THE DEPARTMENT

Prof. Sevuga Pandian A

Head, Department of Computer Science (UG)

The Department of Computer Science (UG) with its proud history of spanning over two decades and stands topmost in the Nation and in the State for the BCA Program it offers. BCA, BCA Analytics, BSc Data Science, BSc CSMM, CSEL PHCS, PHEL, STMM, STCS and STEC programs are devised to provide an ideal amalgamation of theory with hands on experience for the students. Our students receive a broad education that includes a relevant contemporary industry related curriculum, excellent problem solving and communication skills, and the ability to work in cross-disciplinary teams enhancing their spirit of innovation and academic excellence.



The millennial generation of software developers is the future visionaries of companies and nations. To keep pace with rapid changes in the IT sector the department has an auspicious club Computer Academy with more than 1250 members' attempts to confluence between the technology and academics through series of programmes like Guest lectures, Workshops, Seminars, Industrial Visit, Intra and Inter Collegiate fest, Science Exhibition and various communities.

The Department has initiated Academic Alliance with UiPath, Sales Force, Oracle Academy, Microsoft Dynamics Academic, ICT Academy, ACM-W, NPTEL, AWS Educate, Dell EMC, Palo Alto, Honeywell, SAP, Qlik, Celonis, Infosys and VMware IT Academy and IIRS Nodal Center to craft initiatives to address the contemporary skill gap in the novel computing technologies. It helps to ensure the industry, a strong pipeline of graduates to meet its future needs. The department also has a Knowledge Kindle Groups and Common Interest Groups to allow the students to connect communicate and collaborate. The department encourages the students for extended learning process such as self-paced learning through various MOOC and NPTEL courses of their interest.

The department supports the Hybrid Learning model by implementing our own in-house customized Learning management system called Kristu Jayanti Learning Management System (KJLMS), a web application that enables the teachers to create dynamic courses that extend learning to the students, anytime, anywhere. KJLMS facilitates the blended mode of teaching-learning process of both online and offline classes by organizing and executing the teaching and learning in a creative manner.

The shared values of our department are exemplified in various extension activities like Social Outreach Programme (SOP) and Computer Literacy Programme (CLP) providing the students an opportunity to recognize their social responsibility and contribute to the development of the society. I am proud to say that our BCA & BSc Programmes are the best in the Nation due to its diligent adherence to quality in not just academics but also in creating the right impact on corporate sectors and national quality forums.

ABOUT THE DEPARTMENT



Dr Sasikumar V R
Programme Coordinator,
Department of Computer Science (UG)

As we embark on the journey of exploration and innovation in the realm of Information technology, we are thrilled to launch our newsletter Interface designed to keep you updated on all the exciting developments leading up to the grand Intercollegiate IT fest, Xactitude 2024. This newsletter will serve as your go-to source for the latest news, updates, and highlights related to the IT fest. From event schedules and competition announcements to guest speaker profiles and workshop details, we've got you covered with all the information you need to make the most of this extraordinary gathering of IT talent. As we gear up to celebrate innovation, creativity, and excellence in the field of information technology, we invite you to join us on this exhilarating journey. We request you to stay tuned for exclusive insights, behind-the-scenes glimpses, and insider tips to make the IT fest experience truly unforgettable.

CONFERENCES



NATIONAL CONFERENCE IN COMPUTATIONAL INTELLIGENCE(NCCI-2023)

Kristu Jayanti College Autonomous organized the National Conference on Computational Intelligence (NCCI 2023) on January 30, 2023, with distinguished personalities including Fr. Dr. Augustine George, Mr. Rostow Ravanan, Dr. Calistus Jude, Prof. Sevuga Pandian, Prof. Nagendra, and Dr. K Kalaiselvi. The objective was to inaugurate the conference and promote competencies in computational intelligence. The inauguration ceremony featured welcoming remarks by Dr. Calistus Jude and a prelude by Dr. K Kalaiselvi. Fr. Dr. Augustine George stressed the significance of competencies, innovation, learning, and research. Mr. Rostow Ravanan delivered a motivational inaugural address, emphasizing character building and personal growth. Prof. Sevuga Pandian expressed gratitude in the vote of thanks, and the conference abstract proceeding was officially released, with the first copy presented to Fr. Dr. Augustine George by Mr. Rostow Ravanan.



Mr. Rostow Ravanan, the Chief Guest, delivered an impactful inaugural address, focusing on the vital aspects of an individual's development as a computer science professional, character building, and personal growth. His motivational words instilled confidence and encouraged the audience to embrace virtues like truthfulness, charity, and forgiveness.

NCCI 2023 included three technical sessions, enriching the conference's scope. In Technical Session I, **Prof. Amlan Chakrabarti** discussed "Machine Learning for Water Informatics," focusing on integrating machine learning in water informatics for digital solutions to industry challenges



On January 31, 2023, Technical Session-II addressed the "Paradigm Shift in Programming - No-code Revolution," with Mr. Ajith Mathew George highlighting the transformative potential of the No-code revolution, enabling individuals without programming knowledge to build and launch software.

Technical Session-III focused on "Blockchain Evolution and Industry Adoption," led by Ms. Priyanka Roy, who emphasized blockchain's revolutionary impact on data security and transparency, covering various blockchain protocols and industry adoption trends.



INTERNATIONAL CONFERENCE OF COMPUTATIONAL INTELLIGENCE - ICCI-2024

TECHNICAL SESSION- I



The inauguration of the International Conference on Computational Intelligence (ICCI) 2024 featured Dr. Clive VanBuerle and Dr. Srihari Murthy as keynote speakers. Dr. VanBuerle emphasized the vital collaboration between industry and academia, advocating for innovative technology use. Dr. Murthy discussed ethical AI deployment, stressing transparency and accountability. The conference theme, "Navigating the Frontiers of Computational Intelligence," was unveiled, promoting networking and collaboration among attendees. Tokens of appreciation were presented to the speakers, concluding a successful inauguration, setting the stage for a transformative conference.

Resource Person - Dr. Srinivasulu Readdy, dept of computer applications NIT Trichy

Topic - Artificial Intelligence, Challenges & Prospective Research Areas

The Technical Session I of the International Conference on Computational Intelligence (ICCI) 2024, which convened on February 26, 2024, witnessed active participation from students of VI BCA classes A, B, C, and D, alongside paper presenters. Dr. Srinivasulu, from NIT Trichy, delivered an insightful presentation on the evolution of Artificial Intelligence (AI), providing a comprehensive overview that traced its historical progression and highlighted significant milestones. He elaborated on a range of AI techniques, from rule-based systems to advanced machine learning and deep learning

approaches, discussing their respective strengths and limitations across various applications. Dr. Srinivasulu also distinguished between narrow AI, general AI, and artificial superintelligence, providing a nuanced understanding of their capabilities and current developmental stages. Furthermore, the presentation delved into the practical integration of AI within smart home systems, elucidating how AI technologies optimize household tasks, fostering automation, and enriching inhabitants' living experiences.

TECHNICAL SESSION- II

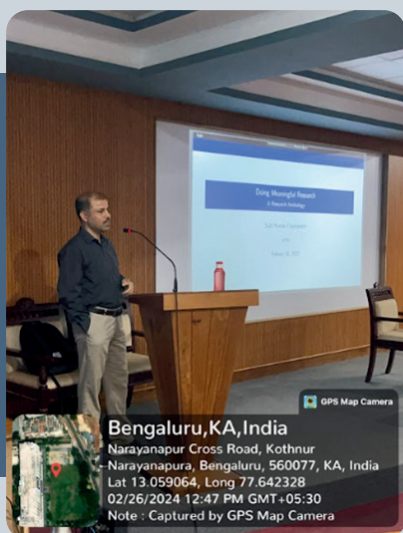


Resource Person – Dr. Susheela Devi from IISC-Bengaluru

Topic – Magic of Generative AI
 The Technical Session II of the International Conference on Computational Intelligence (ICCI) 2024, held on February 26, 2024,

gathered attendees from VI BCA E, VI BCA Analytics, and IV BCA Analytics classes, alongside student paper presenters. Dr. Susheela Devi from IISC-Bengaluru served as the resource person, delivering an engaging presentation titled "Magic of Generative AI." Dr. Devi explored the principles, applications, and emerging trends of Generative Artificial Intelligence, showcasing its innovative capabilities in creating realistic content across various domains such as art, music, and literature. She elucidated the underlying mechanisms and algorithms driving Generative AI, emphasizing its transformative impact on industries like entertainment, design, and healthcare through real-world examples and case studies. The session, enriched by the participation of paper presenters, provided valuable insights into the revolutionary potential of Generative AI, inspiring further exploration and innovation in computational intelligence.

TECHNICAL SESSION- III



Resource Person – Dr. Sujit Kumar Chakrabarti from IIIT-Bengaluru

Topic – Research on Social Impact.
The Technical Session III of the International Conference on Computational Intelligence (ICCI) 2024, held on February 26, 2024, saw the participation of attendees from VI BCA E, VI BCA Analytics, and IV BCA Analytics classes, alongside presentations from student paper presenters. The session featured Sujit Kumar Chakrabarti from IIIT-Bengaluru as the resource person, delivering a presentation titled "Research on Social Impact." Mr. Chakrabarti's presentation delved into the exploration of social impact through research endeavors, offering insights into innovative approaches to address societal challenges using computational intelligence. Attendees, including paper presenters, gained valuable perspectives on leveraging

computational techniques for positive social change, fostering interdisciplinary collaboration, and innovation in the field

TECHNICAL SESSION- IV (Online)



Resource Person – Dr. Divya Midhun Chakkaravathy from Lincoln University Malaysia

Topic – Ethical Considerations in Data Analytics
The Technical Session IV of the International Conference on Computational Intelligence (ICCI) 2024, held on February 26, 2024, welcomed attendees from IV Sem B.Sc Data Science, IV BCA C classes, and included presentations from student paper presenters. Dr. Divya Midhun Chakkaravathy from Lincoln University Malaysia served as the resource person, delivering a presentation titled "Ethical Considerations in Data Analytics." Dr. Chakkaravathy explored the ethical dimensions of data analytics,

discussing principles, frameworks, and case studies that underscored the importance of responsible data usage and societal impact. The session, conducted online, stimulated critical discourse on navigating ethical challenges and promoting ethical practices in data analytics research and applications, emphasizing the intersection of ethics, social justice, and data in contemporary society.

TECHNICAL SESSION V –(ONLINE)



Resource Person: Dr. Midhun Chakkaravathy, Lincoln University, Malaysia

Topic - Strategic Integration of AI
The 5th technical session of the International Conference on Computational Intelligence (ICCI) 2024, led by Dr. Midhun Chakkaravathy, Associate Professor at Lincoln University Malaysia, was a profoundly enlightening experience conducted online. Dr. Chakkaravathy's expertise in

computer science and multimedia shone through as he delivered a captivating presentation on cutting-edge research and practical applications in computational intelligence, engaging the audience with relevant case studies and examples. Attendees from VI BCA A, VI BCA B, VI BCA Analytics classes, alongside student paper presenters, actively participated in interactive discussions, leveraging Dr. Chakkaravathy's insights to deepen their understanding of the subject matter. The dynamic exchange of ideas during the question and answer session fostered a collaborative environment, inspiring attendees to continue pushing the boundaries of computational intelligence in pursuit of groundbreaking advancements. Dr. Chakkaravathy's contribution left an indelible mark on ICCI 2024, encouraging continued exploration and innovation in the field

TECHNICAL SESSION VI



Resource Person: Dr. Meenakshi D'souza Professor, M.S. Ph.D. Programme Coordinator IIIT-Bengaluru

Topic - Testing of IoT Applications
 On February 27, 2024, notable figures including students from II B.Sc IoT, VI BCA A, VI BCA ANALYTICS, and student paper presenters attended the 6th technical session of the International Conference on Computational Intelligence (ICCI) 2024, featuring Dr. Meenakshi D'Souza, the M.S Ph.D Programme Coordinator at IIIT-Bengaluru, as the esteemed resource person. Dr. D'Souza, renowned for her extensive experience and expertise in the field, delivered a captivating presentation elucidating the latest advancements and research trends in computational intelligence. Attendees were deeply engaged by Dr. D'Souza's profound insights into

the subject matter, which included valuable perspectives on emerging technologies and their implications across various industries. Throughout the session, Dr. D'Souza fostered thought-provoking discussions, promoting active participation and the exchange of ideas amongst attendees. Her presentation, augmented by illustrative examples and case studies, facilitated a clearer understanding of complex concepts. The session culminated on a high note, leaving participants inspired and equipped with fresh insights to further explore and contribute to the field of computational intelligence. Dr. D'Souza's expertise and engaging presentation style significantly enriched the ICCI 2024 conference, creating a collaborative environment conducive to learning and innovation.

TECHNICAL SESSION VII



Resource Person - Mr. Rinka Singh, Cyber Security Head iSprit, Bengaluru

The 7th technical session of the International Conference on Computational Intelligence (ICCI) 2024, convened on February 27, 2024, welcomed Mr. Rinka Singh, Cyber Security Head at iSprit, Bengaluru, as a distinguished speaker, centering his discourse on the expansive topic "Research Scope in Cyber Security." Captivated by Mr. Singh's compelling insights, attendees, ranging from seasoned professionals to eager students across diverse academic domains, were treated to an illuminating exploration of the ever-evolving cybersecurity landscape.

With meticulous analysis, Mr. Singh unraveled the intricacies of emerging threats, shedding light on the pressing challenges and opportunities that define contemporary cybersecurity research. His emphasis on proactive methodologies and pragmatic strategies struck a chord with the audience, instilling a sense of urgency and determination to fortify cybersecurity resilience in an increasingly digitized world.

As Mr. Singh's expertise unfolded, attendees were not only enriched with profound knowledge but also inspired to embark on their own quests within the realm of cybersecurity research and innovation. His address served as a catalyst, igniting a collective passion among participants to delve deeper, armed with newfound insights and an unwavering commitment to contribute meaningfully to the advancement of cybersecurity practices and technologies. In essence, Mr. Singh's presence not only elevated the conference but also left an indelible mark on the minds of all those in attendance, fostering a community of cybersecurity enthusiasts poised to shape the future of digital security.

GUEST LECTURE

Expert Lecture on Open Source Technologies - SODA Foundation



The Department of Computer Science (UG) conducted an expert lecture on "SODA Foundation Expert Lecture on Open Source Technologies" in collaboration with Huawei Technologies, India, featuring Mr. Sanil D Kumar, Chief Architect. The event aimed to familiarize participants with the latest open-source technologies and their practical applications, providing valuable insights into multi-cloud data management. Attendees had the opportunity to enhance their understanding and skills in this domain, contributing to their professional development. The lecture served as a platform for knowledge exchange and collaboration, fostering discussion on various aspects of multi-cloud data management. The outcomes highlighted the benefits of open-

source solutions, including accelerated innovation, enhanced security, and greater transparency. This initiative underscores the department's commitment to staying abreast of emerging trends and equipping students with relevant expertise.

Expert lecture on Diversity & Inclusion Session By Global leaders of Microsoft



The Department of Computer Science (UG) organized a session titled "Diversity & Inclusion" by Global Leaders of Microsoft on March 27, 2023, benefiting 200 students from VI BCA B, C, and VI BSc CSMS, CSME, PMCS. Esteemed speakers included Mr. Zia Zaman, General Manager of Corporate Business Development, Mr. Gunjan Patel, Director & Head of India Philanthropy & Community Engagement, Ms. Priyanka Soni, Senior Manager of Business Development, Strategy & Venture, Mr. Ajay Chhabra, Head of Corporate Business Development &

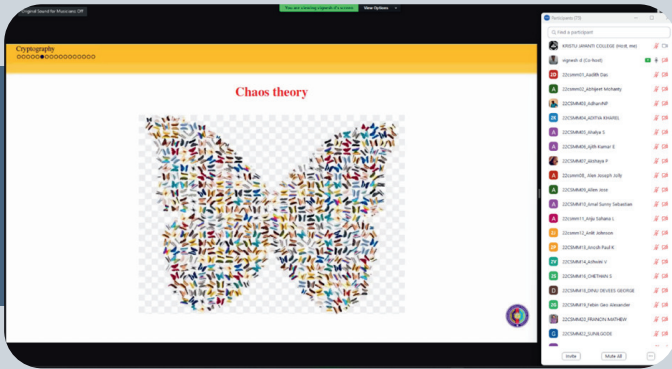
Strategy, Mr. Vinay Kumar, Director of Artificial Intelligence, Azure & Search Partnerships, and Mr. Suresh Babu, Associate VP at ICT Academy, Bangalore. Mr. Zia Zaman discussed Cyber Shikshaa, an initiative aimed at reducing the gender gap in cybersecurity by offering training and skill-building opportunities to women students, along with a mentorship program. He emphasized the importance of diversity and inclusion in the technology industry and highlighted the partnership between Kristu Jayanti and Microsoft through ICT Academy to empower female students in pursuing careers in tech, particularly in cybersecurity. The session aimed to bring about positive change, promote diversity and inclusion, and encourage a cultural shift around gender stereotypes.

Interactive Session on Qlik Centre of Excellence and Students presentation



The Department of Computer Science (UG) organized an interactive session on Qlik Center of Excellence and student knowledge transfer presentation on April 3, 2023, attended by 129 students from IV BCA D and IV BCA E. The session featured Mr. Pankaj Muthe, an International Education Management Expert from Qlik, Bangalore. The objective was to provide insights into QlikView, a leading business intelligence and data visualization tool, along with other data analytics products offered by Qlik, such as Qlik Sense, Qlik Analytics Platform, and Qlik Data Catalyst. These tools enable organizations to make informed decisions and gain valuable insights from their data. The session highlighted the benefits of using Qlik for business intelligence and data visualization, including powerful data analysis capabilities, easy data integration with various sources, interactive visualizations, and collaborative analytics features. By participating in Qlik courses, students can enhance their career prospects in the data analytics field, showcasing their skills and knowledge to potential employers.

International lecture series on Exploring Cryptographic Techniques for Image Encryption



The Department of Mathematics hosted an International Lecture Series on "Exploring Cryptographic Techniques for Image Encryption" on April 15, 2023, attended by 127 beneficiaries from IV BSc-CSMM/STMM and II BSc CSMM/STMM. The session featured Dr. D. Vignesh, a Post-Doctoral Fellow from the National Defence University of Malaysia. The primary objective was to provide participants with an understanding of the fundamentals of image encryption using cryptographic techniques. The event, conducted in a hybrid mode, aimed to educate attendees on the basic concepts of cryptography, including encryption, decryption, keys, and algorithms, with a focus on their application to image encryption. Dr. Vignesh elucidated various cryptographic techniques such as symmetric-key cryptography,

asymmetric-key cryptography, and hash functions, highlighting their advantages, limitations, and practical applications in image encryption. Additionally, the session addressed challenges in image encryption, such as file size and complexity, and explored solutions like block cipher and stream cipher methods. The event was both informative and engaging, offering participants a comprehensive introduction to cryptographic techniques for image encryption. The hybrid format facilitated participation from both in-person and virtual attendees, ensuring accessibility to a wider audience. Overall, 127 participants benefitted from the session, gaining a solid understanding of image encryption using cryptographic techniques.

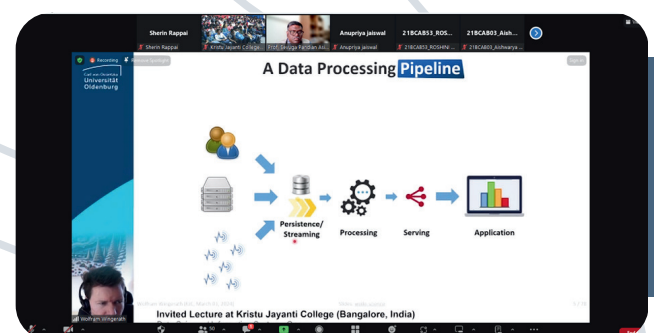
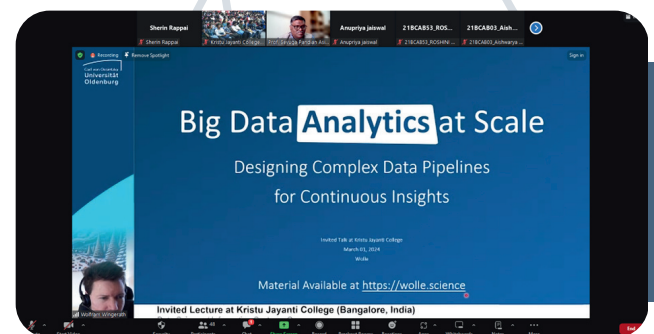
International Lecture Series

International Lecture On: "Big data Analytics at Scale: Designing Complex data pipelines for continuous Insights ."



The Department of Computer Science [UG], in partnership with University of Oldenburg, Germany recently hosted an informative lecture series centered around "Big data Analytics at Scale: Designing Complex data pipelines for continuous Insights ." The distinguished speaker for this event was Prof. Wolfram Wingerath, addressing final year BCA students on March 01, 2024. The session commenced with a moment of silence, followed by a welcome from Mr. Vijay, a final year BCA student. Professor Sevuga Pandiyan, the head of the department, then introduced the guest speaker, providing a brief overview of the significance of datascience.

Wolle spoke about Big data analytics at scale involves the processing and analysis of vast amounts of data to extract meaningful insights. Designing complex data pipelines for continuous insights is crucial in this realm. These pipelines are intricate systems that integrate various data sources, cleanse and transform data, and apply sophisticated analytics algorithms to generate actionable insights in real-time or near-real-time. The design of such pipelines requires careful consideration of factors like scalability, fault-tolerance, data quality, and processing speed. By efficiently managing these complexities, organizations can harness the power of big data to drive informed decision-making and gain competitive advantages in today's data-driven landscape.

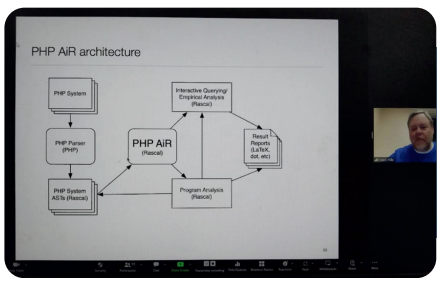


International Lecture On: "Program Analysis and Verification with Rewriting Logic and Rascal ."



The Department of Computer Science [UG], in partnership with Appalachian State University in North Carolina, USA, recently hosted an informative lecture series centered around "Program Analysis and Verification with Rewriting Logic and Rascal ." The distinguished speaker for this event was Prof. Mark Hills, addressing final year BCA students on February 22, 2024. The session commenced with a moment of silence, followed by a welcome from Mr. Vijay, a final year BCA student. Professor Sevuga Pandiyan, the head of the department, then introduced the guest speaker, providing a brief overview of the significance of rascal programming language.

Mark Hills spoke about Rascal meta-programming language which provides a rich language for program analysis, program transformation, and language implementation. Rewriting logic, a logic of concurrency, provides a formal language and collection of tools for language definition and verification. In this presentation, He described his work on using both Rascal and Rewriting Logic to define program analysis tools and to extract information about how programming language features are used in practice. This work has been realized in the PHP AiR framework, a

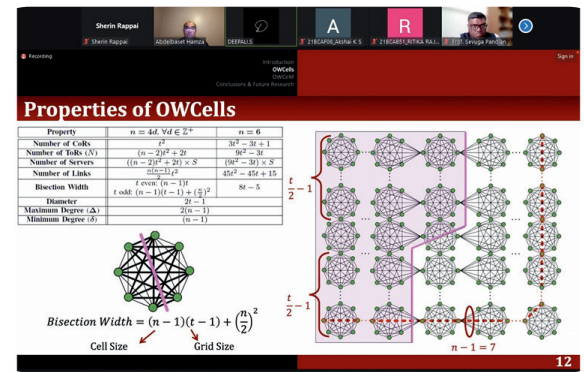


framework for PHP program analysis in Rascal, and in the Go AiR framework, a framework for Go program analysis and verification. He also briefly touched on other Rascal-based program analysis frameworks for languages such as Lua, C, C++, Python, Java, Ada, and COBOL.

International Lecture On: "Optical Wireless Communication in the Design of Data Centre Networks."



The Department of Computer Science [UG], in partnership with Appalachian State University in North Carolina, USA, recently hosted an informative lecture series centered around "Optical Wireless Communication in the Design of Data Centre Networks." The distinguished speaker for this event was Abdelbaset Hamza, addressing final year BCA students on October 27, 2023. The session commenced with a moment of silence, followed by a welcome from Mr. Vijay, a final year BCA student. Professor Sevuga Pandiyan, the head of the department, then introduced the guest speaker, providing a brief overview of the significance of optical wireless communication in the current era.



Abdelbaset Hamza initiated the session by discussing IoT, Big Data, and the design of data centers. He presented the general architecture of data centers and illustrated their operation. Using visual aids, he showcased the advantages of implementing optical wireless communication in data centers and concluded by outlining potential future developments in data center design. The session provided valuable insights into the advantages of incorporating optical wireless communication in data center architecture.

International Lecture Series on Current Trends in Information Technology

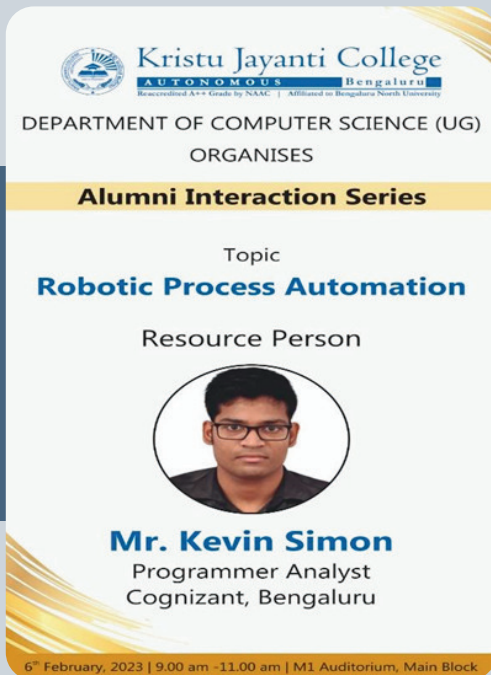


The Department of Computer Science (UG) hosted an International Lecture Series on "Current Trends in Information Technology" on March 2, 2023, benefiting 220 students from VI BCA and B.Sc CSMS/CSME classes. The distinguished resource persons from the University of Information Technology and Management (UITM), Poland, Ms. Magdalena Louis, Director of International Collaboration, and Mr. Tuna Dalaman, Lecturer in Aviation & Management, shared valuable insights during the session. Dr. Sasikumar V R warmly welcomed the delegates, along with Prof. Sevuga Pandian, Head of the Department of Computer Science, and the final-year students. Ms. Magdalena Louis emphasized the significance of understanding

foreign educational systems and highlighted UITM's exceptional contributions in education, particularly in collaboration with CISCO. She provided an overview of the education system in Poland, setting the stage for Mr. Tuna Dalaman's detailed presentation on UITM's infrastructure, courses, fees, living standards, and job opportunities. The interactive session allowed students to engage with the resource persons, seeking clarification and insights into Poland's educational landscape. The event proved beneficial, offering students valuable perspectives on international education opportunities.

ALUMNI LECTURE

Alumni lecture Series on Robotic Process Automation



The Department of Computer Science (UG) organized an Alumni Lecture on "Robotic Process Automation" on February 6, 2023, attended by V BCA A, B, C, D, E classes totaling 286 beneficiaries. Mr. Kevin Simon, a Programmer Analyst at Cognizant, Bengaluru, and an alumni of Kristu Jayanti College (Class of 2018), served as the resource person. The technical session commenced at 10:15 am, where Mr. Simon provided an in-depth explanation of Robotic Process Automation, drawing comparisons between human and robotic models. He also shared

insights into industry experiences, expectations, and the qualities essential for graduates. The session concluded at 12:15 pm with a vote of thanks from student coordinator Sangeeth P Mathews. The feedback analysis indicated that 54% of students were strongly satisfied, 34% were satisfied, and 12% were neutral about the technical talk.

FACULTY DEVELOPMENT PROGRAMME

ONE DAY FACULTY DEVELOPMENT PROGRAMME ON ARTIFICIAL INTELLIGENCE – NEP 2023



ON ARTIFICIAL INTELLIGENCE – NEP 2023

On May 6th, 2023, Kristu Jayanti College, Autonomous, Bengaluru, in collaboration with Bengaluru North University, KSHEC, and Future Skills Prime, NASSCOM, organized a One Day Faculty Development Programme on Artificial Intelligence - NEP 2023. Led by Mr. Dinesh Kumar Panigrahi, Regional Head of SSC NASSCOM, Bengaluru, alongside Mr. Manoj Sharma from Microsoft India Ltd, Bengaluru, and

Mr. Subramanya from Velocis, Bengaluru, the event aimed to equip educators with essential knowledge and skills to effectively teach AI, tailored to meet the needs of students.

DEPARTMENT OF COMPUTER SCIENCE WORKSHOP/ SEMINAR

NEXUS-2024



The Department of Computer Science (UG) at Kristu Jayanti College hosted Nexus, an international event organized by the Google Developer Students Club, partnering with Karostartup, Discountitup, QuantumRobotics, and Upcoming Engineer, on February 12, 2024. Coordinated by Mr. Rohan Agrawal and Dr. Sasikumar V R, Nexus featured a solution challenge where participants developed websites or applications addressing global issues and UN goals using Google platforms. Notable projects included a user-friendly Learning

Management System (LMS) by Samuel, consolidating educational resources, and Ecotext by Shanker, Nikil Kumar, Omkar Reddy, and Melvin, aimed at reducing paper waste through the provision of second-hand books.



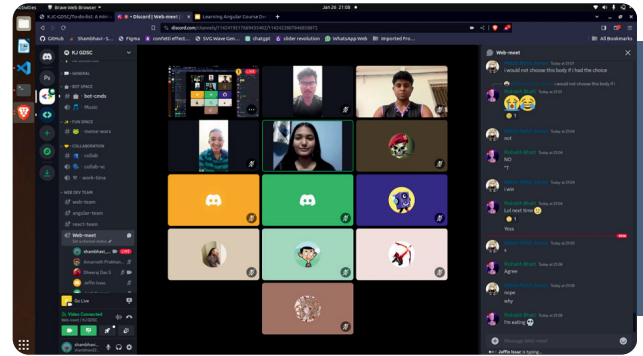
Thirty-seven participants, working in groups of three or four, presented their projects, which were judged by industry experts Dr. Vikash Kumar, founder and CEO of Upcoming Engineer, and Pratik Patel, certified trainer of Microsoft. Winners, Abstract Connoisseurs, Nexa, and ByteCrew, were awarded prizes, and the event concluded with participants registering their names via a QR code. Nexus not only provided valuable experience and confidence to students but also served as a platform for innovation and collaboration within the tech community, aligning with UN goals for positive change.

REACT STUDY JAM 2024



On March 1st, 2024, the "React JAM" web development session will take place from 4:30 to 5:45 at the M1 Lab, featuring Shakir Ali as the resource person. This session aims to provide participants with a comprehensive overview of concepts covered in previous online sessions, emphasizing the integration of web APIs with JavaScript for effective interaction. Participants will be guided through the development of a final project, consolidating their understanding of state management, event handling, API integration, and other intermediate and advanced web development topics. The session's objectives include familiarizing participants with modern web application development practices, fostering a deeper understanding of APIs and their integration with web applications, and encouraging the synthesis of learned concepts into a cohesive final project. Additionally, participants will strategize optimizations and enhancements to further refine their web applications.

ANGULAR STUDY JAM 2024



On September 1st, 2024, the Angular Study Jam 2024 will be conducted with Shambhavi Vijay serving as the esteemed resource person. This event aims to provide participants with in-depth insights into Angular, a popular web development framework. Through interactive sessions, hands-on workshops, and practical exercises, attendees will have the opportunity to enhance their understanding of Angular and its applications in modern web development. Shambhavi Vijay, with her expertise and experience in Angular development, will guide participants through various concepts, best practices, and advanced techniques. By participating in the Angular Study Jam 2024, attendees can expect to gain valuable knowledge and skills that will empower them in their web development endeavours.

Personality Enrichment Session on "6 Thinking Hats"



On February 14, 2023, a Personality Enrichment Session was conducted and was attended by 324 first-year BCA and B.Sc (CS) students. Led by Prof. Vinod Joseph George from the Department of Management, the session focused on cultivating problem-solving skills through the "6 Thinking Hats" methodology. Organized by the Department of Computer Science (UG) in collaboration with the Centre for Soft Skills and Aptitude Training, the workshop aimed to enhance individual and group thinking abilities by encouraging parallel thinking and structured exploration of different perspectives. Participants actively engaged in problem-solving exercises and discussions, gaining valuable insights into personality enhancement.

The session concluded with a vote of thanks, emphasizing the importance of developing critical thinking skills for personal and professional growth.

WORKSHOP on PCB Design Simulation



On February 7, 2023, Kristu Jayanti College conducted a specialized session led by Mr. Hemanth Mahesh, a PCB Design Trainer, benefiting 61 students from the IV and VI semesters of the B.Sc program. The objective was to familiarize students with simulation tools for evaluating electrical circuits using EAGLE PCB design software. Divided into three sessions, Mr. Hemanth provided comprehensive insights into PCBs, circuit construction using EAGLE software, and the importance of Bill of Material (BOM) in circuit development.

The hands-on experience allowed students to deepen their understanding of circuit design and software functionality. Feedback from students highlighted the sessions' effectiveness in enhancing their knowledge and practical skills, ensuring valuable insights for their future endeavors in the field of circuit design and commercialization.

WORKSHOP ON ROBOTIC PROCESS AND AUTOMATION



The Robotic Process Automation (RPA) training program, attended by 103 students from VI BCA & VI B.Sc, featured expert trainers from ICT Academy, Karnataka. Led by Mr. D Vishnu Prasad and supported by RPA trainers Mr. Arun, Mr. Kishore, Ms. Roopa, and Mr. Venkatesh Rao, the sessions aimed to deepen students' understanding of RPA and prepare them for RPA certification. Structured over 100 hours, the program covered RPA concepts,

tools, and practical applications through lectures, demonstrations, and hands-on exercises. Students gained practical experience, industry-relevant skills, and collaborative problem-solving abilities, fostering their employability in the RPA domain. The program's success was evident in students' increased understanding, hands-on experience, and readiness for RPA certification exams, enhancing their career prospects in RPA.

EXPERIENTIAL LEARNING PROGRAMMES

INDUSTRIAL VISIT U R Rao Satellite Centre, Bengaluru



From January 31st to February 2nd, 2024, Kristu Jayanti College's Department of Computer Science (UG) organized an enriching industrial visit to the esteemed U R Rao Satellite Centre (URSC) in Bengaluru, meticulously tailored for

sixth-semester BCA students. The visit, structured into three batches and diligently guided by faculty members, facilitated an immersive exploration into the practical applications of programming concepts within the dynamic domain of satellite technology. Dr. Nagaraj, a distinguished authority at URSC, played a pivotal role throughout the visit, providing comprehensive elucidations on various facets of satellite technology. Students were exposed to an extensive array of topics, including the classification of satellite types, their diverse applications spanning industries, and the intricate processes governing their design, development, and launch.

A notable highlight of the visit was the insightful session focused on Chandrayaan 3, a recent landmark mission aiming to land a rover equipped with scientific instruments on the lunar surface. This session featured an illuminating video presentation meticulously detailing the mission's trajectory

From launch on Earth to the rover's historic touchdown on the Moon. Through this presentation, students gained profound insights into the technological intricacies underpinning the Lander and Rover, further deepening their

understanding of India's remarkable advancements in lunar exploration.

The visit also afforded students the exclusive opportunity to tour the facility's clean room, where engineers meticulously craft and assemble satellites for future missions. Peering through a glass balcony, students were able to witness firsthand the scale and precision involved in satellite development, observing two satellites in various stages of construction.

Concluding with an interactive session, students engaged in enlightening discussions with their guide, delving into the distinctions between ISRO facilities across India. Emphasizing the unique roles of centers such as the UR Rao Centre in satellite construction and the Satish Dhawan Space Centre in Andhra Pradesh for rocket launches, students gained valuable insights into the multifaceted operations of ISRO.

INTER – INTRA COLLEGIATE FESTS

SYNCHRONIZE 2023



On September 30th, 2023, Kristu Jayanti College hosted SYNCHRONIZE 2023, an exhilarating intra-collegiate IT fest spearheaded by third-year BCA students, captivating a total of 360 participants across various BCA batches. Themed around Cyber Security, the event served as a vibrant platform for students to demonstrate leadership, communication, innovation, and teamwork. Organized into 10 teams, each named after Cyber Security themes, the fest featured a diverse array of competitions spanning Mathematics, Statistics, and Computer Science domains. From Agora to Mathalyze, Graphosnark to Netzknoten, participants engaged in

spirited contests, showcasing their skills and competing for coveted titles. The day commenced with a ceremonial lamp lighting, graced by Dr. Fr. Augustine George, Principal of Kristu Jayanti College, who emphasized the significance of Cyber Security in today's digital landscape. Chief Guest Mr. Enoch Manohar, QA Architect at Encora Innovation Labs, Bengaluru, underscored the importance of entrepreneurship and innovation, setting the stage for a day of competition and celebration.



Throughout the day, participants immersed themselves in coding challenges, IT management simulations, and gaming competitions, culminating in a grand valedictory ceremony presided over by Fr. Emmanuel P J, Director of Kristu Jayanti College of Law and Director of Office of International and Domestic Relations. Prof. Sumalatha, Staff Coordinator of the Computer Academy, presented the final report of SYNCHRONIZE 2023,

encapsulating the highlights of the day's events. As the ceremony concluded, participants and organizers celebrated the achievements of the day, with winners of various events hailed for their talent and dedication. SYNCHRONIZE 2023 not only showcased the prowess of Kristu Jayanti College's students but also highlighted the institution's commitment to fostering excellence in IT and cultivating a culture of innovation and collaboration.

XACTITUDE 2K23



Xactitude 2K23, the annual science and technology festival organized by the Department of Computer Science [UG] at Kristu Jayanti College, proved to be a multifaceted platform for young enthusiasts to exhibit their skills and knowledge across a spectrum of disciplines.

Under the expert guidance of Ms. Felicia Priyadharshini, Director at VMWare, Bangalore, the event drew 415 beneficiaries from diverse academic backgrounds, including BSc (CSME, CSMS, MSE, PMCS, PME) and II Sem BCA(A, B, C, D, E, F). With a rich assortment of events meticulously curated to challenge and inspire participants, Xactitude 2K23 offered something for every technophile.

The festival's lineup of events reflected its commitment to nurturing creativity, problem-solving abilities, and technical expertise. Participants engaged in a range of challenges, from the coding competition Codefi() to the web design showcase Websea, from the solo capture the flag event Glitch to the demonstration of electronics and physics prowess in Electrohertz. Other highlights included Graphosnark for visually stunning creations, IT Manager incorporating quizzes and interviews, and competitive gaming tournaments like FIFA and Valorant. Moreover, intellectual pursuits were celebrated through events like KeyStrokes for typing proficiency, Viktorin for IT quiz mastery, and Ideathon for innovative idea pitching, alongside Mathletes for showcasing mathematical and statistical acumen.

SPARKMIND



On September 7th, 2023, from 11:00 AM to 12:00 PM, Dr. Sasikumar V R, Assistant Professor from the Department of Computer Science at Kristu Jayanti College (Autonomous), Bengaluru, orchestrated a dynamic session aimed at nurturing digital creativity among III BCA 'A' students. The session, meticulously designed to encompass Poster Making, Application Creation, and Video Editing, aimed to equip participants with practical skills to embark on innovative projects within these realms. Beyond imparting technical know-how, the event served as a platform for students to connect, share ideas, and potentially collaborate, fostering a vibrant sense of community and collaboration. By providing hands-on experience in each segment, the event not only reinforced theoretical knowledge but also empowered participants

to showcase their talents and explore their creative potential. This immersive learning experience not only enriched participants' skill sets but also laid the groundwork for future collaborations and innovation, exemplifying Kristu Jayanti College's commitment to fostering a culture of excellence and creativity in digital endeavors.

IDEATHON (INTERNAL HACKATHON)



On September 13th, 2023, Kristu Jayanti College (Autonomous), Bengaluru, hosted an exhilarating Internal Hackathon, drawing together 96 aspiring innovators from BCA, BSc Data Science, and BSc IoT programs. Facilitated by esteemed judges including Mr. Amit Kumar and Mr. Sushant Kumar from Caze Labs Pvt Ltd, alongside Dr. Muruganatham A, Dr. Velmurugan R, and Dr. D. Ravindran from Kristu Jayanti College, the event served as

a prelude to the Smart India Hackathon 2023. Students delved into problem statements sourced from the SIH website, offering innovative solutions through a rigorous selection process culminating in a showcase of 16 teams' presentations at the Ideathon. This gathering not only provided a platform for students to exhibit their entrepreneurial acumen but also fostered an exchange of ideas between participants and judges, igniting a spirit of creativity and collaboration. As young minds engaged with seasoned experts, the event sparked inspiration and illuminated pathways for the implementation of transformative ideas, underscoring the college's commitment to nurturing innovation and excellence.

Login 2k23



On August 14th, 2023, Kristu Jayanti College witnessed a significant milestone in its coding community with the inaugural edition of "Login 2k23," a coding event meticulously organized by the Department of Computer Science and Physical Sciences. Aimed at enhancing coding skills and problem-solving abilities, the event welcomed 162 enthusiastic participants from various first-year programs: I BCA C, I BCA Cloud B, and I BCA Analytics A. More than just a coding competition, "Login 2k23" sought to foster a strong bond between first-year students and the department, providing them with a glimpse into the vibrant culture of events conducted within the college.

EXTENSION ACTIVITIES

Computer Literacy program



The Computer Literacy Program (CLiP-2k23), organized by the Department of Computer Science (UG) at the Government Lower Primary School in K. Narayanapura, Bengaluru, aimed to empower students with essential computer skills. Over two days on January 30th and February 1st, 2023, 10 college students conducted comprehensive theoretical and practical sessions covering topics such as Basic Computers, MS Paint, MS Word, and MS PowerPoint, benefiting a total of 50 school children. In addition to teaching, the college students undertook the responsibility of repairing computer systems in the lab and setting up practical sessions. Moreover, they extended their expertise to government higher primary and high school students, covering essential topics like the Windows operating system, data storage, painting, and word processing. This initiative not only contributed to enhancing the computer literacy of the school children but also provided a valuable learning experience for the college students, fostering their understanding of social responsibility and the teaching profession. The overwhelmingly positive feedback received from both students and school staff underscores the program's success in narrowing educational disparities

and fostering community engagement within the region.

Computer Literacy Program (CLiP)-Practical session for Migrant worker's children



During the academic year 2022-2023, the Department of Computer Science (UG) organized a practical session of the Computer Literacy Program (CLiP) aimed at providing computer education to children of migrant workers. Held on January 25th, 2023, at the M5 Lab of Kristu Jayanti College, Bengaluru, the session saw the participation of 35 children who benefited from theoretical and practical sessions covering Basic Computers and MS-Paint. In collaboration with the United Nations Academic Impact Hub for SDG1, the initiative also included topics like the Windows operating system and painting, supplemented by entertaining cartoon screenings. For the college students involved, the program provided valuable teaching

experience, fostering a sense of social responsibility and empathy towards others. Reflecting on the experience, they recognized the challenges faced by the children and the crucial role of teachers in shaping their futures, reinforcing their commitment to community engagement and societal betterment.

prevention of hearing loss and the significance of ear and hearing care. The program commenced with a welcome speech by Prof. Nagendra S, Coordinator of Physical Sciences, followed by introductions of the resource persons. Ms. Deena Priya highlighted the importance of World Hearing Day and methods to prevent hearing loss, while Ms. Meghana Reddy emphasized the impact of noise pollution and demonstrated various hearing guards to mitigate potential risks.

During the session, students were shown a video depicting different noise levels and their effects, and they had the opportunity to engage with a mannequin developed by the institute called 'Karna,' which measures the levels of music played by personal music systems. The interactive segment allowed participants to ask questions, further enhancing their understanding of hearing care. The session concluded with a vote of thanks, leaving students with a heightened awareness of the significance of World Hearing Day and the importance of preserving their hearing health.

COMMEMORATIVE DAYS

Hear and Hearing care for All



On March 3rd, 2023, in observance of World Hearing Day, the Department of Electronics at the Dr. S R Chandrasekhar Institute of Speech and Hearing, Bangalore, organized an Awareness Talk titled "Hear and Hearing Care for All." Led by Ms. Deena Priya, Assistant Professor, and Ms. Meghana Reddy, Audiologist, the session aimed to educate students on the

INTERNATIONAL E-WASTE DAY



On October 14th, 2023, in observance of International E-waste Day, the Centre for Environment and Sustainability, in collaboration with the Department of Computer Science (UG) at Kristu Jayanti College, embarked on a week-long initiative aimed at raising awareness about the pressing issue of E Waste Management. Recognizing the mounting challenge posed by discarded electronic devices, the program sought to educate youth about the environmental hazards associated with e-waste and promote responsible recycling practices. Through active participation in collecting electronic waste from homes and offices, students and staff contributed to the sustainable disposal of e-waste, subsequently handed over for recycling. This concerted effort not only heightened awareness about the

detrimental effects of e-waste but also instilled a sense of social responsibility among participants, empowering them to champion eco-friendly initiatives and contribute to the preservation of our environment.



The objectives included raising awareness about e-waste management, preventing environmental and health hazards posed by e-waste, and ensuring the proper handling and disposal of toxic substances found in electronic devices. Students, faculty, and administrative staff actively participated by depositing various e-waste items such as mice, keyboards, wires, circuit boards, DVDs, CDs, and audio equipment into designated bins placed across campus.

MAJOR PROGRAMS

Computer Literacy program



The Computer Literacy Program (CLiP-2k23), organized by the Department of Computer Science (UG) at the Government Lower Primary School in K. Narayanapura, Bengaluru, aimed to empower students with essential computer skills. Over two days on January 30th and February 1st, 2023, 10 college students conducted comprehensive theoretical and practical sessions covering topics such as Basic Computers, MS Paint, MS Word, and MS PowerPoint, benefiting a total of 50 school children. In addition to teaching, the college students undertook the responsibility of repairing computer systems in the lab and setting up practical sessions. Moreover, they extended their expertise to government higher primary and high school students, covering essential topics like the Windows operating

system, data storage, painting, and word processing. This initiative not only contributed to enhancing the computer literacy of the school children but also provided a valuable learning experience for the college students, fostering their understanding of social responsibility and the teaching profession. The overwhelmingly positive feedback received from both students and school staff underscores the program's success in narrowing educational disparities and fostering community engagement within the region.

CAPABILITY ENHANCEMENT



FACULTY ENHANCEMENT PROGRAMME ON OUTCOME BASED EDUCATION

On the morning of November 10th, 2023, from 09.00 AM to 12.00 PM, esteemed resource person Dr. Sasikumar V R, Assistant Professor at Kristu Jayanti College (Autonomous), Bengaluru, led a comprehensive session delving into the intricacies of Outcome-Based Education (OBE). With a meticulous focus on curriculum design and assessment alignment, participants were immersed in understanding the fundamental principles of defining measurable learning outcomes for each program and course. Dr. Sasikumar skillfully navigated through the curriculum design process, emphasizing the crucial role of identifying key learning outcomes and their seamless integration into specific courses. This session not only

fostered a deeper understanding of OBE but also ignited a shared passion among attendees for crafting student-centered learning experiences. As the morning unfolded, participants gained invaluable insights into the cohesive and progressive development of skills and knowledge essential for academic excellence. By the session's conclusion, attendees emerged equipped with the foundational knowledge necessary to drive educational outcomes reflective of students' holistic growth in knowledge, skills, and competencies.

PROCESS MINING USING EXECUTING MANAGEMENT SYSTEM (EMS)



From August 16th to 18th, 2023, the Computer Science Department hosted a captivating workshop on Process Mining for the students of V BCA F (Analytics), elevating their educational journey to new heights.

Guided by Mr. Manjunath Chandrashekar, Lead Partner Manager – Academic Alliance at Celonis, the workshop served as a beacon of opportunity for 63 eager participants seeking to delve into the realms of Applied Process Mining using Celonis EMS. Throughout three dynamic days, attendees were immersed in a transformative exploration of Process Mining, augmented by practical applications facilitated by Celonis EMS, a gateway to esteemed certifications and promising career prospects. Mr. Chandrashekar's adept leadership steered students through a meticulously crafted curriculum, seamlessly blending foundational concepts with hands-on exercises, thereby fostering a comprehensive understanding of Process Mining's nuances. Through immersive sessions, participants not only garnered theoretical insights but also honed practical skills in data modeling and analysis, culminating in the prestigious Celonis Rising Star Technical Certification. As the workshop concluded, participants emerged not only equipped with newfound expertise but also imbued with the confidence and readiness to navigate real-world challenges, solidifying their status as adept professionals poised to drive impactful change in the dynamic

landscape of process optimization and analysis. This transformative learning experience not only broadens their horizons but also positions them as trailblazers in the field, primed to make significant contributions to the realm of Process Mining and beyond.

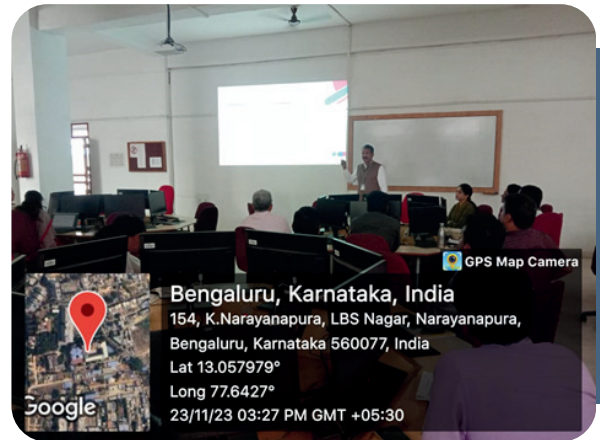
PROCESS MINING USING EMS - CELONIS 2023



On October 17th, 2023, a transformative session titled "PROCESS MINING USING EMS - CELONIS 2023" unfolded, catering to a diverse cohort of participants including students from III BCA, I B.Sc, and III B.SC, totaling 33 beneficiaries. Spearheaded by Ms. Saba Sanober Ansari and Ms. Revathy R, both exemplary students at Kristu Jayanti College, the program aimed to equip female students with a profound

understanding of Process Mining using the Executing Management System (EMS) by Celonis, opening doors to a myriad of opportunities in the burgeoning process mining job sector. This dynamic two-hour training session immersed participants in the realm of Applied Process Mining using Celonis EMS, offering a structured journey from foundational concepts to practical applications. Through hands-on experiences, attendees not only grasped the intricacies of Process Mining but also acquired practical insights into harnessing Celonis EMS for robust process analysis and optimization. The acquired skills hold immense value across various industries, empowering professionals to elevate business processes, enhance decision-making, and ensure regulatory compliance. This session not only broadened horizons but also paved the way for participants to embark on fulfilling careers driving efficiency and innovation in diverse sectors, solidifying their position as adept contributors in the realm of process optimization and analysis.

WORKSHOP ON OBE 2.0 PRACTICES



On November 23rd, 2023, from 03:00 PM to 04:30 PM, esteemed educators Dr. Sasikumar V R, Program Coordinator, and Ms. Sumalatha A, Assistant Professor, both from the Department of Computer Science at Kristu Jayanti College (Autonomous), Bengaluru, led a transformative workshop aimed at familiarizing participants with the principles and implementation of Outcome-Based Education (OBE) in educational institutions. With a structured agenda encompassing Understanding OBE Concepts, Developing Learning Outcomes, Assessment and Evaluation, Implementation Challenges and Solutions, and Framing Question Papers, the session provided attendees with a comprehensive understanding of OBE practices. Drawing together individuals

passionate about educational quality, the workshop served as a collaborative platform for learning and sharing insights. By the session's conclusion, participants departed equipped with a deeper comprehension of OBE principles and practical strategies for implementation, poised to contribute significantly to the enhancement of educational quality. This engaging session not only enriched participants' knowledge but also inspired them to embark on a journey of transformative educational practices, underlining the commitment of Kristu Jayanti College to fostering excellence in education.

One-Day Workshop on Empowering Your World with IoT



On October 28th, 2023, from 09:00 AM to 04:00 PM, an enlightening session unfolded for 24 eager students of I B.Sc. IoT, under the expert guidance of Dr. L. Selvam, Assistant Professor from the Department of Computer

At SRM Institute of Science and Technology, Dr. Selvam conducted a one-day IoT training to equip students with fundamental knowledge. They learned about IoT evolution, sensors, and microcontrollers like Arduino and NodeMCU. Practical sessions included creating a smart light using IR sensors and Blynk IoT platform. Divided into teams, students crafted their own IoT projects, culminating in smart lights controlled via mobile and web apps. Dr. Selvam also demonstrated Alexa integration, inspiring students to explore IoT's potential further. Practical sessions were a key component of the training, allowing students to apply their newfound knowledge in real-world scenarios. One notable activity involved the creation of a smart light system using IR sensors and the versatile Blynk IoT platform. This practical exercise not only reinforced theoretical concepts but also enabled students to develop tangible IoT solutions. To foster collaboration and creativity, students were divided into teams and provided with IoT kits to work on their own projects. This collaborative approach fostered a dynamic learning environment, where students could exchange ideas and leverage each other's strengths.

EXPERIMENTAL LEARNING PROGRAMMES

QLIK TECHNOLOGIES



The Department of Computer Science (UG) organized an industrial visit to Qlik Technologies on November 6, 2023, for 59 students from the V-BCA (F) class as part of their course on Data Warehousing and Data Mining. Hosted at QlikTech India Pvt. Ltd. in Bangalore, the visit provided students with insights into data warehouse automation and real-time data ingestion processes. Participants witnessed firsthand the automation of data warehouse lifecycle, data modelling, and provisioning of data marts, highlighting the importance of data integration in analytics-ready data availability. Change data capture mechanisms for real-time data movement from heterogeneous databases, data lakes, and enterprise sources were demonstrated,

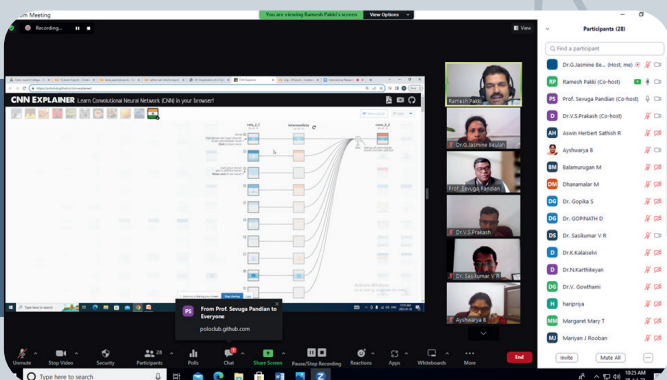
emphasizing universal sources, targets, and platforms for enterprise-wide data management. The visit enabled students to apply theoretical concepts learned in classrooms to real-world scenarios, enhancing their understanding of data management operations and technological advancements in the field. It also exposed them to industry standards, quality control measures, safety protocols, and benchmarks followed in the industry. Dr. N. Karthikeyan and Dr. K. Kalaiselvi supervised the visit, ensuring a fruitful learning experience. This industrial visit provided students with valuable insights into the practical application of data warehousing and data mining concepts, bridging the gap between theory and practice.

STUDENT REVIEW ON QLIK

The industrial visit to Qlik Technologies provided students with an insightful glimpse into the forefront of technology and innovation in the visualization industry. Led by Mr. Rajiv Maskara, the session offered a deep dive into Qlik's advanced technology and its real-world applications in data analytics and business intelligence. Participants learned about Qlik's history, current activities, and its

role in data analytics, including ETL, ELT, data warehousing, and data lakes. Mr. Maskara showcased Qlik's capabilities through a live dashboard demo featuring data from Licious, highlighting its data modeling and interactive dashboard creation features. Additionally, Mr. Pashupati Sharma provided comprehensive insights into industry practices, challenges, and emerging trends, fostering discussions on future career paths and personal development. Despite some expectations falling short, the visit left students inspired by the possibilities of advanced technologies and provided valuable insights into the practical aspects of the industry. Overall, the industrial visit seamlessly blended theoretical knowledge with practical insights, offering a holistic learning experience and preparing students for the dynamic field of data analytics and business intelligence.

RESEARCH ACTIVITIES OF THE DEPARTMENT



The Department of Computer Science (UG) organized an International Research Empowerment Lecture on Artificial Neural Networks Multi-Layer Perceptrons on July 28th, 2023, benefiting 28 faculty members. Dr. Ramesh Babu, a Data Scientist and System Analyst at the Canadian Institute for Health Information (CIHI) in Toronto, Canada, served as the resource person for the event. The objective of the lecture, held in association with IEEE Computer Society, was to provide opportunities for building impactful relationships, strengthening the workforce, and expanding the brand's reach in competitive computing technologies. Dr. Babu delivered insights into Multi-Layer Perceptrons (MLP), explaining their role as fully connected dense layers transforming input dimensions to desired ones. He provided a gentle introduction to neural networks and Tensor Flow, emphasizing how Deep Learning algorithms autonomously learn dataset patterns and extract features, facilitating faster adaptation to data. Dr. Babu highlighted the significance of Deep Learning algorithms in feature design and extraction, enabling algorithms to adapt quickly without extensive human intervention. Overall, the lecture offered valuable insights into artificial neural networks and their practical applications, enriching the knowledge base of the faculty members.

STUDENTS ACHIEVEMENTS

UiPath Student Developer Champion

22BCAD64
V Meenakshi Iyer



V Meenakshi Iyer, a distinguished student from the Department of Computer Science (UG), has been honored with the esteemed title of "UiPath Student Developer Champion" by UiPath, in recognition of her outstanding skills and dedication. This prestigious acknowledgment highlights Meenakshi's exceptional proficiency and expertise in UiPath technologies, positioning her as a remarkable talent within the realm of computer science. Meenakshi expresses her gratitude for the invaluable experience gained at the UiPath DevCon event, where she had the opportunity to explore the latest advancements in automation technology.

Additionally, Meenakshi commends her fellow UiPath Student Developer Champions for their remarkable contributions.

GDSC (Google Developer Student Clubs) lead

21BCAC55
Rohan Agarwal



Rohan Agarwal has been serving as the GDSC (Google Developer Student Clubs) lead, where his role has been pivotal in nurturing a dynamic and engaged community of developers within Google Developer. Through his leadership, Rohan has spearheaded numerous initiatives and events geared towards empowering aspiring developers and promoting a culture of innovation within the community. His strategic planning and execution have been instrumental in orchestrating workshops, hackathons, and networking opportunities that facilitate skill development and collaboration among members. Rohan's unwavering dedication and depth of

expertise have not only contributed to the growth and success of the Google Developer program but have also fostered an environment where individuals can thrive and realize their full potential.

STUDENT'S PAPER PRESENTATION

1. **Hannah Jess John, Hemant Kumar** presented their collaborative work on 'Cryptographic Algorithm Optimization: An Empirical Study on Enhancing Security and Efficiency'
2. **George Shaiju, Amreen, Vignesh** presented their work on 'Healthsync360: Revolutionizing Healthcare Through Aadharbased Encryption, Blockchain Integration, And Ai-Driven Insights'
3. **Himanshi Singh, Rachana V, Moulyashree DJ** presented their work on 'Comprehensive Healthcare Solutions: Enhancing Monitoring and Alerts through Sensor Bracelets in IoT Systems'
4. **Gauri Santhosh, Jemima Grace Kurian, Priyanka Anand, Saba Sanober Ansari** presented their work on 'Detecting Manipulated Images in Digital Forensics Using Python and Classifiers'
5. **Kulsum Fathima, Michael D, Sawan Khadka, Dr. Gowthami V** presented on 'The study on AI and its Applications'
6. **K.Varshini, Kiran Kumar, Praveena.R, Thanushree.R** presented on 'An In-Depth Comparative Analysis of SMS Fraud Detection Algorithms: Evaluating Effectiveness, Efficiency, and Robustness'
7. **Alex Khundongbam** presented on 'Assessing the Impact of COVID-19 on Inflation Dynamics in India: A Machine Learning Approach'
8. **Meghana S, Haripriya M P** presented on 'Future of Healthcare: A Comprehensive Survey of IoT in Medical Technology - Features, Security, and Challenge'
9. **Nishad Khobragade, George Shaiju** presented on 'Navigating the Human Element: A Study on Social Engineering'
10. **Samriddhi Kashyap, Hajira Sait, Mohammed Danish** presented on 'Robotic Emotion Tracker'
11. **Josphin Jeraid, Samar Subhash, Reuben Sunil George** presented on 'Cryptography: Guardians of Privacy in the Connected World'

12. **Fasi Ahmed Khan J R, Sam David, Mamatha S** presented on 'Quantum Horizons: Navigating the Future of Computing'

13. **Anand Kumar, Padmasee Sinha, Vanshika Thavnani** presented on 'Study on next-generation sensing and imaging technologies'

14. **Bhadarage Kasturi, Guddi Jangid, Sadhana S** presented on 'The Study on Human Computer Interaction (HCI)'

15. **V Meenakshi Iyer** presented on 'Cryptography as a Part of E-Commerce Record Management System'

16. **Pushparani M** presented on 'Implementation of Reinforcement Learning - Optimized Communication Protocols for Vanets: Challenges and Solutions'

17. **Mr. Vignesh** presented on 'Empowering Mental Health Resilience: LLAMA 2-Based AI Model'

18. **Yuthvek MJ, Adheena Shibu, Charithra Y** presented on 'Analyzing Business Crimes by Implementing Osint Architecture - An Empirical Study'

19. **Shoun Chacko Salaji** presented on 'Object Detection with OpenCV in Python'

20. **Gokul S Unnikrishnan, Kavya Gopal** presented on 'Analysing Randomness for Encrypted Data to Reevaluate the Futility of its Compression'

21. **Rishi Naman Singh** presented on 'Artificial Intelligence and the Future of Smartphone Operating Systems'

22. **V Meenakshi Iyer** presented on 'Comprehensive Analysis of Artificial Intelligence in Contemporary Society'

23. **Ms. Bhoomi Agarwal, Mr. Ansh Kumar** presented on 'People's ways to identify and prevent scam on social media shopping'

24. **Pragyansh Vardhan, Tanisha Singhanian** presented on 'Mobilizing Music Therapy: A Comprehensive Approach for Personalized Healing and Progress Tracking'

STUDENTS' PUBLICATION

"In the context of the National Conference on Computational Intelligence (NCCI-23), several students from our institution showcased their research prowess and innovative projects:

1. **Ashwin Rajan, Vignesh K,** and **Krishna Prasath** presented their collaborative work on 'IoT Based Intelligent Parking System using Machine Learning,' implemented in Python.
2. **Abhay MS** and **Ashwin N Hebbar** collaborated on 'Electric Field Mapping of Any Given Point Charge Distribution using Python,' presenting their research findings at the conference.
3. **Abhay MS, Ashwin Hebbar,** and **Sayan Ghosh** collaborated on 'A Hand-Gesture Recognition System Using Image Processing to Translate Indian Sign Language Alphabets to Text,' demonstrating their expertise in both image processing and language translation technologies.
4. **K. Ratan Sudhakar, Swetha M.A,** and **Jovanna E Mathew** jointly conducted a study titled 'A Study to Assess the Level of Self-Esteem and Stress Levels among Students of Higher Education Institutions in

Bangalore Urban,' contributing valuable insights to the field of psychology and education.

5. **Jeffry M Joshua, Sangeeth V Mathews,** and **Shawn Biju Thomas** collaborated on 'Cybernetic Companion using Machine Learning,' showcasing their expertise in developing AI-driven companions through Python implementation.

PATENTS

1. On September 29, 2023, **Ms. Divya K.S** and **Dr. Margaret Mary T** filed an application for the patent titled "IOT CONTROLLED CLIP LAMP" with Application No. 393560-001. The design has been accepted and published.
2. On October 27, 2023, **Dr. M. Sudharsan** filed an application for the patent titled "WRIST BAND FOR WOMAN SECURITY" with Application No. 394194-001. This patent has been granted.
3. On October 30, 2023, **Dr. M. Sudharsan** filed an international patent for the "AI BASED COMPACT CARDIAC DEFIBRILLATOR" with Application No. 6320776. This patent has been granted.

PATENTS PUBLISHED

1. **Dr. Gopika S, Ms. Mary Jacob, Dr. K Kalaiselvi:** Behavioral analysis of subject barking features and remote monitoring using machine learning (ml) based on iot [Patent Application Number: 202241047822].

2. **Dr. C Naveeth Babu:** Packet sniffer and detection of data breach in network path analysis [Patent Application Number: 202241053328A].

3. **Mr. S. Britto Jacob, Ms. Ann Mary Joyson, Ms. Mini, Gopala Krishnan, Dr. Soya Mathew, Ms. B Menaka:** Svihrw covid-19 image classification using augmented intelligence based On federated learning [Patent Application Number: 202241061684A].

4. **Mr. S. Britto Jacob, Ms. B Menaka, Ms. Keerthi Vijayan:** A novel segmentation and pre-processing of interstitial lung disease using Deep learning model [Patent Application Number: 202241063769A].

5. **Dr. Margaret Mary T, Ms. Keerthi Vijayan, Dr. Vennila J, Dr. Prakash V S, Dr. Vinoth B:** Dual perseverance sprayer for pesticides and fertilizers blender in agriculture [Patent Application Number: 202241034259].

6. **Ms. Sumalatha A, Dr. Hari Priya:** A methodology to analyze the images of kidney captured using medical modalities for anomaly detection with algorithms of machine learning [Patent Application Number: 202241071402].

7. **Dr. Britto Jacob S:** Sensor-based data leaf infection for iot-driven using machine learning and deep learning [Patent Application Number: 202241072066].

8. **Dr. Prakash V S:** Hybrid electronic vehicle charger [Patent Application number: 202341017643].

9. **Dr. Prakash V S:** Interactive kiosk for ticket sales [Patent Application Number: 379861-001].

10. **Dr.K.Kalaiselvi,Dr.MaryJacob,Dr .Gopika S :**A secure architecture using block chain technology for shared electric vehicle charging [Patent Application Number: 398125/001]

11. **Ms. Yashoda M B :** IMPLEMENTATION OF AREA EFFICIENT AND HIGH SPEED ALU USING REVERSIBLE LOGIC WITH BDD TOPOLOGY [Patent Application Number: 202341082918 A]

12.Ms. Yashoda M B : ENERGY-EFFICIENT D2D COMMUNICATION IN INTERNET OF THINGS USING HYBRID INTELLIGENCE [Patent Application Number: 202341083439 A]

STUDENT ARTICLES

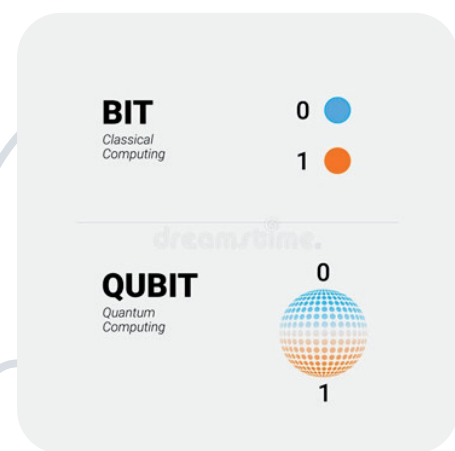
AI – Quantum Encryption (Unbreakable Security)

21BCAB16
Deeksha S



In today's world, keeping our information safe is super important and it is our top priority . Whether it's personal stuff like messages to friends or important stuff like bank details or financial data, we all want our information to stay private . That is where encryption comes in, acting as a shield against cyber threats. But as technology advances, even cyber attackers are getting advanced . This is where the powerful combination of AI and quantum encryption steps in to provide unbreakable security . Now the question arises stating what is "Quantum"? In simple words, it's all about using tiny particles called

"quantum bits" or "qubits" to encode information . The special thing about qubits are, unlike regular bits in traditional computers which can only be either 0 or 1, qubits can be both at the same time . It also has a weird property called "superposition" which means they can store way more information and do things which bits can't .



Qubits are super delicate . They can easily get messed up by things like heat or even a tiny vibration . That's where quantum encryption comes in . Imagine if we could use qubits to make ultra-secure codes. Even if someone tried to hack them, the codes would change letting us know that someone was trying to snoop. It's like listening to a conversation where the words keep changing, making it impossible to understand.

That's where AI comes in. AI is like a super-smart computer that can learn and adapt. By using it we can make our quantum encryption even stronger and more reliable. AI helps

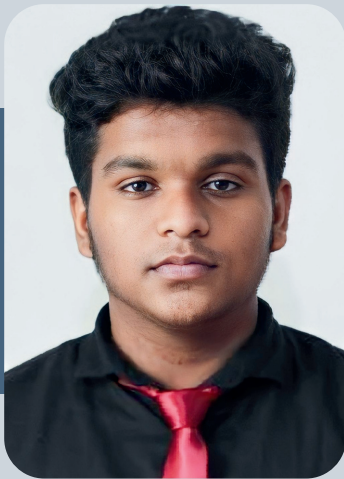
in quickly spot any attempts to break in . It also helps in adjusting our encryption methods in real-time to stay ahead of hackers .

So, when there is a combination of quantum encryption with AI, we are able to create a super secure system that's almost impossible to crack . It's like having a high-tech fortress protecting our data from cyber threats.

In the end, AI-Quantum Encryption isn't just the future of security – it's happening now. As we continue to embrace the digital future, this is innovative approach which will play a crucial role in safeguarding our sensitive information and preserving our privacy .

BLOCKCHAIN TECHNOLOGY BEYOND CRYPTOCURRENCY

21BCAB18
DINESH



Blockchain has since transcended its origins, offering a myriad of possibilities that extend far beyond digital currencies. At its core, blockchain is a decentralized and immutable ledger, a digital record-keeping system that stores data across a network of computers.

Each block in the chain contains a cryptographic hash of the previous block, creating a secure and tamper-proof system. While its application in finance and digital assets is well-known, the true potential of blockchain lies in its ability to revolutionize various industries and reshape the way we interact and transact.

One area where blockchain is making significant strides is in supply chain management. With its transparent and traceable nature, blockchain technology enables the tracking of goods from their origin to the hands of the consumer. This not only helps to combat issues such as counterfeiting and fraud but also enhances efficiency by streamlining processes and reducing costs. Companies across sectors, from agriculture to retail, are leveraging blockchain to ensure the authenticity and integrity of their products.

Another promising avenue for blockchain is in the realm of healthcare. By securely storing and sharing medical records on a distributed ledger, blockchain has the potential to revolutionize patient care. Patients gain greater control over their data, while healthcare providers benefit from improved interoperability and access to a comprehensive view of patient history. Moreover, blockchain-based systems can enhance data security and privacy, addressing longstanding concerns in the healthcare industry.



The decentralized nature of blockchain also holds promise for democratizing access to financial services, particularly in underserved regions. Through blockchain-based platforms, individuals can access banking, lending, and investment opportunities without relying on traditional financial institutions. This has the potential to empower

Beyond finance and healthcare, blockchain is disrupting various other sectors, including real estate, voting systems, and intellectual property rights. Smart contracts, self-executing contracts with the terms of the agreement directly written into code, are automating processes and eliminating the need for intermediaries in transactions. This not only reduces costs but also minimizes the potential for disputes and fraud.

ARTIFICIAL INTELLIGENCE AND THE FUTURE OF SMARTPHONE OPERATING SYSTEMS



Rishi Namam Singh
21BCAD51

Smartphones have undergone rapid evolution since their inception, continually integrating new technologies and features to enhance user experience. From basic communication devices to powerful handheld computers, smartphones have become indispensable tools in modern life, offering convenience, connectivity, entertainment, and productivity to

users worldwide. The advent of artificial intelligence (AI) in smartphone operating systems represents a pivotal advancement, ushering in a new era of mobile technology innovation. By leveraging AI algorithms and machine learning capabilities, smartphones can now offer personalized experiences, predictive suggestions, and intelligent automation features that adapt to users' preferences and behaviors in real-time. This research paper aims to explore the seamless integration of AI into smartphone operating systems, shedding light on current limitations inherent in traditional mobile platforms. It examines how AI-driven enhancements have the potential to revolutionize the future landscape of mobile technology, transforming smartphones into smarter, more intuitive companions that anticipate and fulfill users' needs proactively. Furthermore, the paper delves into the multifaceted challenges and ethical considerations associated with the widespread adoption of AI in smartphones. Issues such as data privacy, algorithmic bias, and the ethical implications of AI-driven decision-making processes are carefully examined, highlighting the importance of responsible AI development and deployment practices. As AI technologies

continue to advance at a rapid pace, they hold the promise of unlocking new frontiers of innovation and possibilities for smartphones and the broader digital ecosystem. By harnessing the power of AI, smartphones can transcend their current limitations, empowering users with unprecedented levels of intelligence, efficiency, and personalization in their everyday interactions with technology.

Text Summarization and Document summarization using NLP



21BCAE20
Shoun Chacko Salaji

Automatic text summarization has become increasingly crucial in navigating the ever-growing ocean of textual information. This research delves into exploring the potential of Natural Language Processing (NLP) techniques for creating efficient and informative summaries. We implemented and evaluated models based on Long Short-Term Memory (LSTM) networks, Sequence-to-Sequence (Seq2Seq) architectures, and transformer-

based approaches. By leveraging these powerful algorithms, we aimed to generate concise summaries that capture the essence of the original text. The evaluation highlighted the strengths and limitations of each approach, showcasing the potential of NLP for text summarization while acknowledging the remaining challenges. This research not only contributes to the ongoing discussion on text summarization techniques but also opens doors for further exploration, including integrating domain-specific knowledge, personalizing summaries based on user preferences, and applying these techniques to real-world information overload situations. Ultimately, this work underscores the promise of NLP-driven text summarization in facilitating efficient information access, comprehension, and utilization across various domains.

NAVIGATING THE HUMAN ELEMENT: A STUDY ON SOCIAL ENGINEERING



22BCAA40
Nishad
Khobragade

The art of social engineering involves using psychological tricks on people instead of technical hacking methods to access data or systems. The threat of social engineering has grown in importance in the field of the art of social engineering involves using psychological tricks on people instead of technical hacking methods to access data or systems. The threat of social engineering has grown in importance in the field of cybersecurity. This study examines the numerous psychological theories and practical applications of social engineering. This study attempts to provide a thorough understanding of social engineering and its effects on people, organizations, and society by exploring its history, famous cases, and preventive measures. Furthermore, this research delves into the evolution of social engineering tactics and their

adaptation to modern technological landscapes. By analyzing famous cases and real-world examples, the study illuminates the diverse strategies employed by social engineers to exploit human vulnerabilities and manipulate individuals into divulging sensitive information or compromising security protocols.

In conclusion, this study serves as a comprehensive examination of social engineering, shedding light on its psychological foundations, practical applications, and broader ramifications for cybersecurity. By providing insights into its history, methodologies, and preventive strategies, it aims to empower individuals and organizations to better defend against the pervasive threat of social engineering.





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