DEV BHOOMI
—UTTARAKHAND—
UNIVERSITY

SCHOOL OF ENGINEERING & COMPUTING

NEXGEN

Editor in Chief : Prof. (Dr.) Ritika Mehra
Editor : Mr. Rakesh Arya

Student Editorial Team :
Esarani Singh, Anshul, Simran Saini, Aditya,
Mahima Mishra

Chancellor's Message

Embracing Progress and Innovation!

In this ever-evolving landscape of technological advancements and academic excellence, our University stands as a beacon of innovation and progress. This quarterly edition encapsulates a kaleidoscope of achievements, aspirations, and discoveries within our School of Engineering & Computing. It echoes the relentless pursuit of excellence and the unwavering commitment towards education by our esteemed faculty, diligent staff, and enterprising students.I encourage each of you to immerse yourselves in the pages of "NexGen" and explore the narratives that celebrate the endeavors and triumphs of our vibrant academic community. Together, we are shaping the future and laying the foundation for a legacy of innovation and excellence.

Best Wishes

MR. SANJAY BANSAL
CHANCELLOR
DEV BHOOMI UTTARAKHAND UNIVERSITY

MR. AMAN BANSAL
PRO-CHANCELLOR
DEV BHOOMI UTTARAKHAND UNIVERSITY

Celebrating Innovation and Academic Excellence

This edition encapsulates the vibrant spirit of innovation, intellect, and accomplishments within our academic community. The pages of "NexGen" serve as a testament to the unwavering commitment and dedication exhibited by our faculty, staff, and students in their pursuit of excellence. The School of Engineering & Computing stands as a catalyst for transformative change, fostering an environment that nurtures creativity, critical thinking, and technological advancement.The passion and drive displayed by our students are truly commendable. Their innovative projects, research endeavors, and academic achievements reflect their unwavering commitment to pushing boundaries and striving for excellence. They epitomize the ethos of our institution and inspire us all with their pursuit of knowledge and innovation.

Prof.(DR.) PREETI KOTHIYAL
VICE CHANCELLOR
DEV BHOOMI UTTARAKHAND UNIVERSITY

Celebrating Innovation and Academic Excellence

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Prof. (DR.) Ritika Mehra

Dean's Message

Dear Readers,

It is with immense pleasure and pride that I extend a warm welcome to each of you to the August to October edition of "NexGen," the magazine representing the dynamic and progressive School of Engineering & Computing at Dev Bhoomi Uttarakhand University. This edition is a testament to the incredible accomplishments and relentless pursuit of excellence within our academic community.

The pages of "NexGen" encapsulate the essence of innovation, research breakthroughs, and academic achievements that define our school. Our commitment to fostering a culture of ingenuity, collaboration, and technological advancement is vividly portrayed in the stories and endeavors featured within this magazine.

Throughout the past months, our School of Engineering & Computing has been a hub of creativity and exploration. Our esteemed faculty members have continued to lead groundbreaking research, pushing the boundaries of knowledge and inspiring our students to think critically and innovatively.

I encourage each of you to immerse yourselves in the insightful content of "NexGen" and celebrate the accomplishments and contributions of our vibrant academic community. Thank you for your continuous support and dedication to the pursuit of knowledge and innovation. May this edition of "NexGen" inspire you as much as it has inspired us.

Wishing you an enlightening and enjoyable exploration through the pages of "NexGen."

Wishing you all a fulfilling and rewarding journey ahead.

Best regards,

SoEC WELCOMES

DR. DEEPAK SINGH
DEAN RESEARCH & DEVELOPMENT,
DEV BHOOMI UTTARAKHAND UNIVERSITY

Dr. Deepak Kumar is faculty of Department of Mechanical Engineering and Dean Research & Development. He is Alumni ofMotilal Nehru National Institute of Technology. He has expertise in CAD/CAM, Hydraulic Systems, Pneumatic Systems and Mechatronics. He was previously associated with UPES and has vast experience in research & Development.

Prof.(DR.) SAURAV KUMAR
HoD MECHANICAL ENGINEERING,
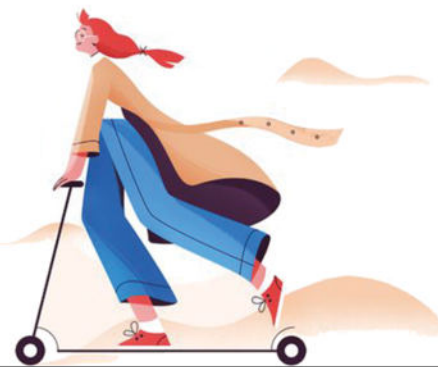DEV BHOOMI UTTARAKHAND UNIVERSITY

Dr. Saurav Kumar. Dr. Saurav Kumar was previously associated with NIT Rourkela, in the field of advanced materials like FGMs for their static and dynamic behavior.

Faculty Development Program
On Robotic Process Automation (RPA)

School of Engineering & Science organized 5-day Faculty Development Program on Robotic Process Automation (RPA) from 7th-11th August 2023 in association with ICT Academy.FDP was aimed to offer comprehensive knowledge and professional-level skills focused on developing and deploying software robots. The participants got hands-on sessions practice on Robotic Process Automation Basics, Introduction to UiPath, Variables and Arguments, Selectors, Control Flow, DataManipulation, Automation Concepts and Techniques, Web extraction, RPA challenge.

INDUCTION/ ORIENTATION PROGRAMME

School of Engineering & Computing Organized"Deeksharambh 2023"(Induction/ Orientation Programme) forAcademic Session 2023-24 for all freshmen (B.Tech, BCA, B.Sc IT & MCA)from 21th August to 26st August 2023 in two groups. The aim was to formally introduce the students to the School of Engineering & computing (SoEC) and DBUU University, its policies, procedures and culture. Objective of the program was to help students feel welcome, comfortable and to provide them with the necessary information and resources to succeed academically and socially.

Deekasharambh Started with Welcome address by Dr. Ritika Mehra ,Dean School of Engineering and Computing where she addressed students for fostering them to form society of lifelong learners with the ability to create an environment for discovery, innovation, discourse and expression. The whole session was engaging and captivated the student's attention.

Welcome address was followed by session on Critical thinking, Entrepreneurship, Leadership by Mr. Yograj Singh Negi. The next was awareness session by Fire and safety department, Govt. of India "First aid and Fire Safety Basics".The fire safety session has provided with crucial information and insights to ensure the safety. By understanding the importance of fire prevention, knowing how to respond in case of an emergency, students are better equipped to minimize risks and protect lives.

The session on Table Equities and Manners was deliveredby Mr. Surendra of Hotel Management faculty where Table manners and equities were discussed. This session helped students to learn the manners and tips when in the gathering.

Dr. Kanchan Thakur, Ayurveda delivered a session on Kitchen Medicines where she educated students about the utility of home medicine like ginger, clove, Black Petter, Tulsi to help students to get fit.

Mr. Manoj Beniwal , CCPS, STF Department,Uttrakhand conducted Cyber Crime & Anti-Drug Awareness program, which was informative session as he briefed the freshers about the cyber-crime and tips and technique for get safe in this world.

Face Painting activity was also organised during Deeksharambh. The activity was conducted by Er. Shahrukh & Mr Kshitiz, Architecture.

Mr. Mayank from Department of Yogic Sciences conducted a session on Yoga, he taught basics of yoga and various steps asana and utilities.

Fashion Activity was conducted by Ms. Rakhi Virmani, Journalism & Liberal Arts, the students learned the basics of ramp walk and way of introducing self on floor.

A session on News Anchor taken by Mr. Rahul Gairola, Journalism & Mass Commhe demonstrated types of news flashes and role of editor.

Different Medical Emergencies session was taken by Dr Megha. She instructed students on how to handle medical emergencies and discussedon incidents like bleeding that need emergency medical treatment, often they can be treated by first aid at home,and number of reasons why someone may have difficulties in breathing.

Ms. Ganga Negi, SoEC conducted Fun activity with Maths where students were divided in teams forplayingquiz on mathematics with tricks.

Workshop on Robotics conducted by Mr. Ashok, Ensino Research & Development Pvt. Ltd, inspire high students by giving them real world experience to develop a robot and given demo on small robotsto develop an understanding on the technology with critical thinking.

Career Counselor from Career Launcher , Mr Manuj Mittal delivery a session Rise & Shine to motivate students for career and life skills (Thinking skills, Personal, Interpersonal skills (communication skills, empathy, cooperation etc.).

Awareness of Traffic Rules & Regulation by Mr. Sarvesh Panwar, SP Traffic, Dehradun given a brief about regulation of traffic awareness and utilities of helmet on bikes.
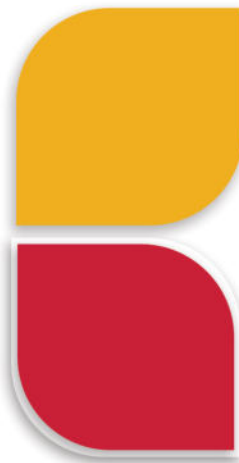
Time Management for Engineers talk by Prof (Dr) O P Soni elaborated on various points on human behavior, told small life skills stories too.

Treasure Hunt activity coordinated by Ms Jaishree, Mrs. Gunjan & Mr.Sumit was a fun for students as random groups was created for searching of hints.

Honeybee flying of robots event was conducted by Mr. Alok Tomar, DUAI, Dehradun. It was about the drone technologies and various model of drone, which brief the various courses and future trends related to Drone. The session was concluded with online quiz and the winner were awarded goodies. The students also witnessed drone flight during the session.

A Visit to UCOST was organized for the freshers which was both informative and inspiring where student visited Regional Science Center which is advancing science and technology center of Uttarakhand. It was a perfect destination for students to expand their scope of knowledge to expand research capabilities and enhance outreach programs.

International Conference

On Smart Innovative Technologies on Green & Sustainable Development (SITGSD–2023)

Day 01

Launching a symphony of ideas and innovation, where sustainability takes center stage! School of Engineering and Computing came alive as we proudly hosted the International Conference on 'Smart Innovative Technologies for Green and Sustainable Development'. Distinguished guests from various corners of the globe graced the occasion, adding a touch of international flair to this remarkable event.The anticipation was palpable as Dr. Ritika Mehra Dean SoEC inaugurated the proceedings with mindful thoughts and Our Pro Chancellor Mr. Aman Bansal showed a beautiful path by their thoughts on Sustainable Development. The presence of our Honourable Chancellor Mr. Sanjay Bansal made this event more wonderful. The luminous flames danced in harmony with the collective determination to foster sustainable innovation.

To commemorate this gathering of brilliant minds, our leaders along with dignitaries launched 'Souvenir-cum-Abstract Book' on 'Smart Innovative Technologies for Green and Sustainable Development'. Following talk were given by keynote Speakers:

1.Dr. Gleb G. Rogozinsky
Leading the charge in ecological research at the Laboratory of Ecology of Transport Systems, Russia, Dr. Rogozinsky's insights are shaping a greener transport landscape.

2.Aleksandra Rogozinska
All the way from St. Petersburg, Russia, Aleksandra Rogozinska brings melodies of sustainability as a Sound Designer and Producer.

3. Dr. Shashi Kumar
The Director of Indira Gandhi National Forest Academy, Dehradun, Dr. Kumar's dedication to preserving our woodlands is an inspiration.

4.Er. Narendra Singh
A Past-President of The Institution of Engineers (India), Er. Singh's engineering acumen drives us towards innovative and sustainable solutions.

5.Dr. Bhim Singh
With the distinction of being a SERB National Science Chair and Emeritus Professor at IIT Delhi, Dr. Singh's electrical expertise enlightens our path to a smarter future.

6. Er. S. C. Chauhan
As the Honorary Secretary of UKSC, Er. Chauhan bridges connections for sustainable progress.

Day 02

commenced with a traditional lamp lighting ceremony and extended a warm welcome to our Chief Guest, Prof. (Dr.) Anil Sahasrabudhe, Chairman of NETF and Former Chairman of AICTE. Prof. (Dr.) Sahasrabudhe, in his address, delved into the realm of Artificial Intelligence and Machine Learning, shedding light on the burgeoning technologies that are shaping our future. Keynote sessions were a treasure trove of knowledge, featuring renowned speakers:

Dr. M V Reddy, Associate Professor and Senior Researcher from the National University of Singapore (NUS), enlightened us on cutting-edge developments in the field of Materials Science and Engineering, Chemistry, and Physics.

Dr. Narendra Yadav, Chairman of UKSC and Chief Engineer (Retd.) from the Irrigation Department UK, shared his insights on 'Fostering Economic Growth and Development,' a crucial aspect of sustainability.

Dr. Anurag Kumar, Director of NIELIT Haridwar, unfolded the intricacies of the 'Digital Economy & Digital Platform,' exploring how these platforms are driving progress in today's interconnected world.

Er. Himanshu Awasthi, representing UJVNL Ltd., provided valuable perspectives on 'Energy Storage Systems for Green & Sustainable Development,' a vital component of our journey towards a greener future.

Day 03

The School of Engineering and Computing hosted the International Conference SITGSD-2023on the third day at Institution of Engineers India. At the venue on the third day we are truly honored to welcome distinguished gathering of guests, including Shri Bhagat Singh Koshyari, Ex-governor of Maharashtra and Ex-Chief Minister of Uttarakhand. Additionally, we extend our heartfelt gratitude to our Guests of Honour: Mata Mangla Ji and Bhole Ji Maharaj (founder of The Hans Foundation Dehradun), Er Narendra (President IEI Kolkata), Er Anil Kumar (MD UPCL Dehradun), and Er R R Tanwar, Past Chairman (ELDB IEI Kolkata).

Our esteemed guests were felicitated with due respect, and we proudly unveiled the Souvenir Book titled 'Rehabilitation and Resettlement Tehri Dam and other Major Hydro Power Projects in India,' a testament to our commitment to sustainable development.

Dr. Ritika Mehra, the Dean SoEC, eloquently highlighted the conference's key themes and objectives. Our Pro-Vice Chancellor, Dr. R.K. Tripathi also shared his valuable insights with the audience.Chief Guest, Shri Bhagat Singh Koshyari, graced us with his wisdom on the pivotal topic of the development and growth of Uttarakhand. His insights were invaluable and inspiring. Equally enlightening were the thoughts shared by our other dignitaries, who passionately discussed the path to sustainable development.Together, let's shape a greener, smarter, and more sustainable future.

Quizzards

Winner's got cash prize of Rs. 2000 and Rs 1000.

Department of Civil Engineeringorganized an Event "Quizzard"on the auspicious occasion of Engineer's Day i.e., September 15, 2023.A day filled with knowledge, camaraderie, and unforgettable memories at the DBUU Campus. This event is typically designed as a quiz competition where participants are asked a series of questions and they must provide accurate answers within a specified time frame. Additionally, it also provides an excellent platform for an individual or a team to showcase their intellect, learn new things, and connect with like-minded enthusiasts in a fun and entertaining way.

Guest Lecture on BlockChain Technologies

Department of Computer Science and Engineeringorganized a Guest Lectureon BlockChain Technologies, on 14-SEPT-23 at Ayurveda Seminar Hall. Dr. Mayank Aggarwal,Professor Gurukul Kangri Vishwavidhyalaya, Haridwar, expertise shed light on the practical applications of blockchain in various industries. Students of BTech(CSE) 3rd participated with full enthusiasm and relive the knowledge-packed day seminar on blockchain technology.

Workshop on Web Development using ReactJS,

Department of Computer Science and Engineering organized a one day seminar on Web Development using ReactJS by Mr. Saud Ahmed for the students of BTech(CSE) 2nd year on 20 Sept 23.

Workshop on Predictive Analysis using Machine Learning

Department of Computer Applicationsorganized Workshop on Predictive Analysis using Machine Learning, on 07-OCT-23, at Data Analytics Lab,DBIT Main Block. The workshop was conducted by Mr. Mukesh Kumar, Assistant Professor, DBUU.

Workshop on Data Analysis

Department of Computer Science and Engineering organized a one-day event on Data Analysis on 19 Oct -23, 10:00 am, Seminar Hall, Main Building. The workshop was conducted by Mr. Vikas Singh, Brillica Services for the student of B.Tech First year. From exploring data sets to mastering analysis techniques, this workshop was a journey of discovery and growth.

Guest Lecture on Role of Machine Learning in Remote Sensing

Department of Computer Science Applications organized a guest lecture on Machine Learning in Remote Sensing on 26 Oct -23, 10:00 am, Seminar Hall, Main Building. The workshop was conducted by Dr.Rashmi Saini, Associate Professor, GBPIET Pauri.

Guest Lecture on Recent Research Trends in Human Computer Interaction and its application

Department of Computer Science and Engineering organized a Guest Lecture on Recent Research Trends in Human Computer Interaction and its application on 21st Oct, 2023 for the students of B.Tech CSE 2nd Year. The workshop was conducted by Dr. Tanupriya Chaudhary, Professor, Symbiosis International University, Pune. The aim of the event was to ignite curiosity and raise awareness about the latest research in the field of Human Computer interactions among students.

Workshop on "Product designing using Auto CAD"

Department of Mechanical Engineering and Department of Electrical Engineering conducted a workshop on "Product designing utilizing Auto CAD " on 25th Oct 2023 and 26th Oct 2023 for the students Mechanical and electrical engineering 2nd and 3rdyear. The main aim of the workshop was to develop competency in understanding the concept of planning, visual ideation, modeling, prototype, and design in the context of product design. In addition, to assist the students in carrying out various projects and necessary product designs improvisation.

Donation Drive

Department of Civil Engineering organised a "Donation Drive" on 2nd oct, 2023 by Mr. Ashuvendra Singh. A dedicated and spirited donation drive was organised to commemorate the ideal of a great leader, Mahatma Gandhi, on his birth anniversary. The collective effort of students showcased the power of unity in making a tangible difference in the lives of others.

Guest Lecture Saturated/Unsaturated
Soil Mechanics and its Applicability to Landslide studies

Department of Civil Engineering organised a Guest Lecture on"Saturated/Unsaturated Soil Mechanics and its Applicability to Landslide studies "on 06 Oct, 2023. The lecture was delivered by Dr. Srikrishnan Siva Subramanian, Assistant professor, IIT Roorkee. The lecture was conducted to enhance student's knowledge about natural disaster Landslide.

INDUSTRIAL VISIT

Department of Civil Engineering organized an educational visit to Indian Institute of remote sensing (IIRS) Dehradun, Uttarakhand on 29th Sep, 2023.In this visit students enhance their skills and get the practical exposure about inventions and research. This educational visit give exposure to students in the field of remote sensing, geoinformatics and GPS technology for natural resources, environmental and disaster management under the Indian Department of Space. Mr Rajat Hindwal and Ms. Tabish Ansari accompany the students to conduct this visit successfully.

Educational Visit to Dehradun Smart City Limited

Department of Computer Application organized an Industrial Visit for the students of BCA to ITDA Data Centre, Dehradun. Students get Insight on projects of Government of Uttarakhand State IT initiatives and various Information and Communication Technology (ICT) projects.Drone Application and Research Center. Mr Sanjay Mathur, Task Force Manager given a seminar at Drone Application and Research Centre (DARC).

ONGC Educational Visit

Department of Computer Application organized Educational Visit to Koders Software Development and GEOPIC division at ONGC (Oil and Natural Gas Corporation) Dehradun on 27-OCT-23, for the students of BCA Second Year, ONGC is a multinational oil and gas company based in India. Dr. M. Mahadevan (Director) given insights on exploration and production activities.

Congratulations

Prof(Dr.)Ritika Mehra, Dean SoEC received Educational leadership Award from International Institute for Technical Teachers during the 5th Higher Education Summit – 2023. The award was presented to her by Chief Guest of the summit: Hon'ble Speaker, Uttarakhand Legislative Assembly, Mrs. Ritu Khanduri.

Prof.(Dr) Ritika Mehra, Dean SoEC, received "Teacher of the year Award 2023" at Dehradun International Science & Technology Festival-2023 by Shri Anand Vardhan, IAS Additional Chief Secretary, Govt of Uttarakhand organized at DIT University Dehradun.

Prof.(Dr) Ritika Mehra, Dean SoEC was Invited as Resource person on 7 Oct 2023 for 5 days (3rd to 7th October 2023) training program on "AI & Machine Learning Applications in Natural Resource Management" for the scientific and technical staff of NRM institutes of ICAR organized at ICAR-Indian Institute of Soil & Water Conservation (IISWC), Dehradun.

Dr. Ritika Mehra and Mr. Govind S Panwar receivedGrant for project from Uttarakhand State Council for Science and Technology "Autonomous Mobile Robot for Crop Monitoring and Weed Control System" on Oct 2023

STUDENT CORNER

Congratulations

Congratulations to Mr. Sachin Kumar Yadav, B.Tech CSE for being placed in Learning Routes. Prolifics is a Digital Engineering Company providing Innovative IT solutions to global customers.

B.Tech Mechanical Final Year student Mr. Ashish Garg has secured 2nd Price in "MEGA START-UP EXPO-2023" held on 3-5 Oct 2023 at North Eastern Hill University, Tura Campus, Meghalaya.

Mr. Ashish Garg presented his Start-Up idea in online mode, his idea was appreciated by the judges of the event and earned him the 2nd price, which also includes a Prize Money of Rs. 75000/-.

Padmavyuh Hackathon 2.0

The School of Engineering and Computing organized a 2-day Hackathon Event Padmavyuh Hackathon 2.0 DBUU 2023 at the university campus. With more than 340 students registered as 94 teams a great response was received from students. Students participated from all across the University.

On 27th Oct, 2023 Day 1 of the event participants were required to solve three out of four problems in the time allotted (6 hours without any internet connection to solve problems). Forty teams were shortlisted for Round 2.

On day 2 of the event i.e., 28th Oct 2023, forty teams who had qualified for Round 1 were required to solve three out of four problems in Round 2. Participants were allotted 6 hours to solve problems with the Internet provided to participants.

Code Competition Expert Track

The Winning prize money for the winner was a cash of Rs. 11,000. The 1st Runner Up would be rewarded with a cash prize of 7,000 Rs & 2nd Runner Up would be rewarded with Rs 5,100.

• Winners after Second Round team Coden Heimer with a score of 79 Out 80. Participants of this team were Bhanu Goel, Toron Jain, Abhishek , Nischal Gurung.

• 1st Runner-Up was declared team Ace Squad with a score of 77.5 Out of 80. This team had Manthan Sharma, Suhail Ahmad, Raman Dhaiya ,Manvee as team members.

• 2nd Runner-Up with a total score of 64 Out of 80 was Donkey Coders with team members as Anshul, Rahul Prasad, Abhishek Singh Rawat, and Manas Bhatt.

Code Competition Novice Track

The faculty members of SoEC judged the participants. The Winning prize money for the winner was a cash of Rs. 11,000. The 1st Runner Up would be rewarded with a cash prize of 5,100 Rs & 2nd Runner Up would be rewarded with Rs 3,000.

• Winners after Second Round team Yodha with a score of 68 Out 80. Participants of this team were Ranjan Kumar, Anik Yadav, Arpan Sharma, Ayush Kumar.

• 1st Runner-Up was declared team Team Algo with a score of 64 Out of 80. This team had Pratham Kumar, Madhurush Gupta, Abhay Chauhan, Soniya Rawat as team members.

• 2nd Runner-Up with a total score of 63 Out of 80 was Team Alpha with team members as Vivek Raturi, Vibhanshu Kumar, Om Niranjan, Usmaan Ansari.

Model Making

The Winning prize money for the winner was a cash of Rs. 7,000. The 1st Runner Up would be rewarded with a cash prize of 3,000 Rs & 2nd Runner Up would be rewarded with Rs 2,000.

• Winners after Second Round team Code Crushers with a score of 53.5 Out 80. Participants of this team were Shreshth Jha, Sandeep Singh, Priyanshi Nayal, Kanika Lohani.

• 1st Runner-Up was declared team Dynamic Dreamers with a score of 51 Out of 80. This team had Simran Saini, Anshika Yadav, Ayush Kothari, Anup Mondal team members.

• 2nd Runner-Up with a total score of 50 Out of 80 was team Apostolic Engineers with team members Akshat Bora, Toran Jain.

Student Article

Advancements in Natural Language Processing: Conversational AI and Chatbots

Abstract

In recent years, we have witnessed remarkable advancements in the field of Natural Language Processing (NLP). One of the most exciting applications of NLP is Conversational AI and Chatbots, which have revolutionized the way we interact with technology and transformed various industries.Conversational AI refers to the development of intelligent systems that can engage in human-like conversations. The advancements in Conversational AI and Chatbots have greatly enhanced user experiences, improved customer service, and increased efficiency in several industries.Traditional rule-based systems relied on pre-defined patterns and rules to process language, making them rigid and limited in their capabilities. With the advent of machine learning and deep learning algorithms.

Introduction:

Neural networks, particularly recurrent neural networks (RNNs) and transformer models, has been instrumental in advancing Conversational AI. RNNs, with their ability to capture sequential information, have proven effective in tasks such as language modeling and dialogue generation.Transformer models, exemplified by the groundbreaking BERT (Bidirectional Encoder Representations from Transformers) architecture, have revolutionized the field by capturing contextual information and achieving state-of-the-art performance in various NLP tasks, including question-answering and sentiment analysis.

Esharani Singh BCA2nd year

Advancements and Conversational AI and Chatbots

Another notable advancement in Conversational AI is the integration of multimodal capabilities.Despite the progress made in Conversational AI, there are still challenges to overcome. Achieving a deeper understanding of context, dealing with ambiguous queries, and maintaining user privacy and data security are areas that require further research and development. However, with ongoing advancements in NLP and the continuous improvement of conversational models, these challenges are being addressed, paving the way for even more sophisticated and intelligent chatbot systems.

Conclusion

In conclusion, advancements in Natural Language Processing have propelled Conversational AI and Chatbots to new heights. From rule-based systems to machine learning and deep learning approaches, these technologies have transformed the way we interact with machines. With multimodal capabilities, large-scale pre-training models, and improved contextual understanding, chatbots have become powerful tools across industries, providing efficient customer service, personalized experiences, and seamless interactions. As NLP continues to evolve, we can expect even more exciting developments in Conversational AI, enabling machines to converse with us in ever more natural and human-like ways.

Esharani Singh BCA2nd year

Student Article

The Rise of Quantum computing : Unleashing the Power of the Quantum Realm

Simran Saini BCA 2nd year

Abstract

Quantum computing is a rapidly-emerging technology that harnesses the laws of quantum mechanics to solve problems too complex for classical computers. Today, IBM Quantum makes real quantum hardware -a tool scientists only began to imagine three decades ago and available to hundreds of thousands of developers. This work drives toward the quantum computing speed and capacity necessary to change the world. These machines are very different from the classical computers that have been around for more than half a century. Here a primer on this transformative technology.

Need

When scientists and engineers encounter difficult problems, they turn to supercomputers. These are very large classical computers, often with thousands of classical CPU and GPU cores capable of running very large calculations and advanced artificial intelligence. If a supercomputer gets stumped, that is probably because the big classical machine was asked to solve a problem with a high degree of complexity. When classical computers fail, it is often due to complexity. The real world runs on quantum physics. Computers that make calculations using the quantum states of quantum bits should in many situations be our best tools for understanding it.

How do quantum computers work

An IBM Quantum processor is a wafer not much bigger than the one found in a laptop. And a quantum hardware system is about the size of a car, made up mostly of cooling systems to keep the superconducting processor at its ultra-cold operational temperature. A classical processor uses classical bits to perform its operations. A quantum computer uses qubits (CUE-bits) to run multidimensional quantum algorithms. Quantum computers store data in quantum binary digits called quantum bits, or qubits that can be made using various technologies.

Quantum Education

The rise of quantum computing is a remarkable journey from theoretical concept to transformative technology. While practical, large scale quantum computers are not widely available, the progress made in recent years is nothing short of astonishing. Quantum computing has the potential to redefine what's possible in the realm of computing, unleashing a new era of scientific discovery and technological advancement. As a quantum revolution continues to unfold, it promises to reshape industries and our understanding of the universe itself.
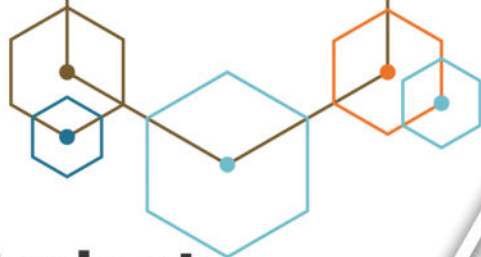
DO YOU KNOW?

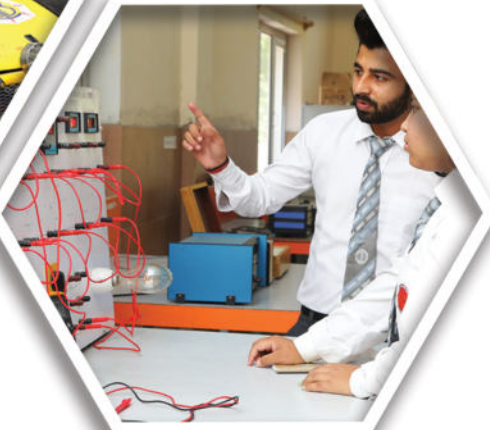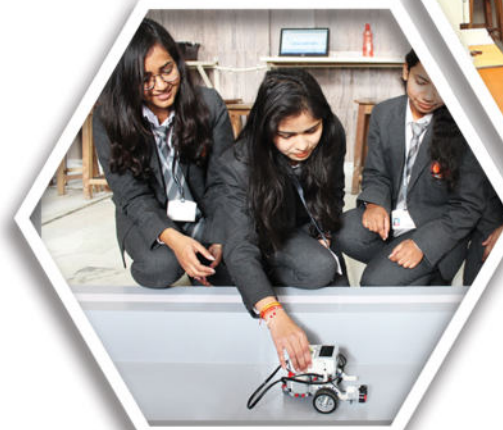## 10 MOST POPULAR DEEP LEARNING ALGORITHMS:

- Convolutional Neural Networks (CNNs)
- Long Short Term Memory Networks (LSTMs)
- Recurrent Neural Networks (RNNs)
- Generative Adversarial Networks (GANs)
- Radial Basis Function Networks (RBFNs)
- Multilayer Perceptrons (MLPs)
- Self Organizing Maps (SOMs)
- Deep Belief Networks (DBNs)
- Restricted Boltzmann Machines(RBMs)
- Autoencoders

Research Articles Published/ Accepted in Journals Conferences/ Book Chapters

S.No.	Name	Title	Journal	Status	Year
1.	Dr. Upendra Kumar Verma	Role of solvents on the performance of bulk heterojunction (BHJ) organic solar cells	Proceedings of the 27th International Symposium, VDAT 2023	Accepted	2023
2.	Ranjana Devli, Ritika Mehra, Govind S Panwar	Integrating a Novel Scheme for enhanced energy efficiency in Human Body Area Networks (HBAN) with Mobile Sink and Cluster Head Selection	IEEE conference on New frontiers in communication, Automation, Management and Security, Presidency University , Bengaluru	Accepted	2023
3.	Dr. Bichitra Singh Negi, Mr. Tushar Verma ,Ms. Tabish Ansari	Prediction of shear strength for SFRC beams by coupling Shear Resisting Mechanism with Critical Shear Displacement Approach	International Conference on Smart Innovative Technologies for Green and Sustainable Development	Accepted	2023
4.	Mr. Ashuvendra Singh	Performance of Concrete by partial replacement of copper slang with fine aggregate	International Conference on Smart Innovative Technologies for Green and Sustainable Development	Accepted	2023
5.	Mr. Ashuvendra Singh	CFD Investigation of the effects of wind speed on structural building of different areas	International Conference on Smart Innovative Technologies for Green and Sustainable Development	Accepted	2023
6.	Mr. Ashuvendra Singh	Comparative study of seismic analysis of RCC building using is code 1893:2016 (Part -1) and nepal building code 105:2020	International Conference on Smart Innovative Technologies for Green and Sustainable Development	Accepted	2023
7.	Dr. Ritika Mehra, Mr. Sumit Bumbak	Educational Data Mining required for transmission of Education Effectiveness	International Conference on Smart Innovative Technologies for Green and Sustainable Development	Accepted	2023
8	Dr. Ritika Mehra, Mr. Dhajvir Singh Rai, Mr. Sachin Sharma	Prototype of Autonomous vehicle by using Machine learning Techniques	International Conference on Smart Innovative Technologies for Green and Sustainable Development	Accepted	2023
9	Dr. Ritika Mehra, Mr. Govind S Panwar	3D Mapping using Visual Odometry and AI Brain Automated Robot	International Conference on Smart Innovative Technologies for Green and Sustainable Development	Accepted	2023
10.	Dr. Ritika Mehra	Review contributions in speech recognition for HCI	International Conference on Smart Innovative Technologies for Green and Sustainable Development	Accepted	2023
11.	Dr. Tiyasha	Numerical analysis of pile group, piled raft, and footing using finite element software PLAXIS 2D and GEO5.	Scientific report	Published	2023
12.	Mr. Lakshman Singh	Analysis of trend using Nano parametric test for rainfall and Rainy-Days in Jodhpur zone of Rajasthan.	The Indian ecology society	Published	2023
13.	Mr. Ankit Belwal	Economic visibility evaluation of RCC and Brick masonry design for septic tank	AIP Conference	Published	2023
14.	Mr. Rohit Kumar	Fundamental of modern transportation system(Intelligent control for modern transportation system)	Taylor & Francis	Published	2023
15	Mr.Yudhveer Singh, Mr. Sumit Bumbak, Ms.Jaishree Agrawal	Future of E- Commerce via Augmented Reality and Virtual Reality: An Application of AI	International Conference on Smart Innovative Technologies for Green and Sustainable Development	Accepted	2023

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