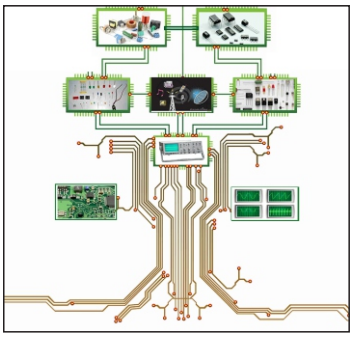
ELECTRONICA

Newsletter

Department of Electronics & Communication Engineering



Volume 9 | Issue 1 | July - Dec 2023

Vision and Mission of the Institute

Vision

- To be one of the premier Institutes of Engineering and Management education in the country

Mission

- To provide Engineering and Management education that meets the needs of human resources in the country
- To develop leadership qualities, team spirit and concern for environment in students

Objectives

- To achieve educational goals as stated in the vision through the mission statements which depicts the distinctive characteristics of the Institution
- To make teaching-learning process an enjoyable pursuit for the students and teachers

Vision and Mission of the Department

Vision

- To be a renowned department for education in Electronics and Communication Engineering in Karnataka State, moulding students into professional engineers

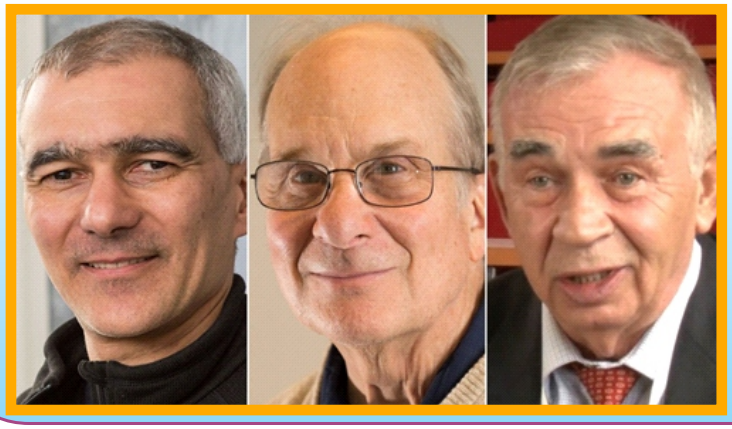
Mission

- To provide teaching - learning process in Electronics and Communication Engineering that will make students competitive and innovative to adapt to needs of industry and higher learning
- To imbibe professional ethics, team spirit and leadership qualities to succeed in changing technological world
- To inculcate empathy for societal needs and concern for environment in engineering design and practice

Program Education Objectives

After 2 to 3 years of graduation, the students will have the ability to:

- Analyze, design and implement solutions in Electronics and Communication Engineering and adapt to changes in technology by self/continuous learning
- Engage in higher learning and contribute to technological innovations
- Work with professional ethics as an individual or as a team player to realize the goals of the project or the organization
- Work with respect for societal values and concern for environment in implementing engineering solutions



This edition of Electronica is dedicated to Moungi G. Bawendi, Louis E. Brus, and Aleksey Yekimov who were jointly awarded the 2023 Nobel Prize in Chemistry for the discovery and development of quantum dots. These tiny particles have unique properties and now spread their light from television screens and LED lamps. They catalyse chemical reactions, and their clear light can illuminate tumour tissue for a surgeon.

What's inside…

B. N. M. Institute of Technology

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Vidyayāmruthamashnuthe

From the Editors' Desk

Dear Readers,

Welcome to another edition of our Newsletter, Electronica, Volume 9, Issue 1. As we begin another exciting semester, we are so excited to present a collection of the achievements, innovations, and strides our department has made on the academic and research fronts.

This particular issue brings out the exemplary resilience and creativity of our students and faculty shown over the last few months. Despite the continuous adversities faced across the global landscape, we have witnessed exceptional resolve to take knowledge and technology to the next level.

In this edition, you are taken through articles covering a front view of research projects, the achievements of our distinguished faculty, and updated features on students' initiatives and achievements. Our department continues to foster an environment of innovation, thus leading to various awards and recognition for students and staff.

We take this moment to appreciate all the contributors who made this issue possible deeply. Your commitment and enthusiasm lead our newsletter to be an accurate mirror of the lively and dynamic spirit that the ECE Department at BNMIT showers on all members.

Looking ahead, I am confident that our efforts together will continue to strive for excellence and make impactful contributions in Electronics and Communication Engineering. Thank you for sharing this journey with us, and we hope you find this issue both informative and inspiring.

Editorial Team

About the Department

The Department of Electronics & Communication Engineering at our esteemed institution was established in 2001, and since then, it has been at the forefront of providing quality education and fostering innovation in the field. We take pride in offering two VTU-affiliated programs – B.E. and M. Tech, specializing in VLSI Design and Embedded Systems. Moreover, the department has a recognized VTU Research Centre, nurturing the aspirations of **Seven** doctoral candidates under the able guidance of **Ten** registered research supervisors. Our students have consistently achieved academic excellence, secured **Twenty-Three** VTU Ranks in University examinations, and earned multiple gold medals in cultural and sports activities, reflecting their all-around development.

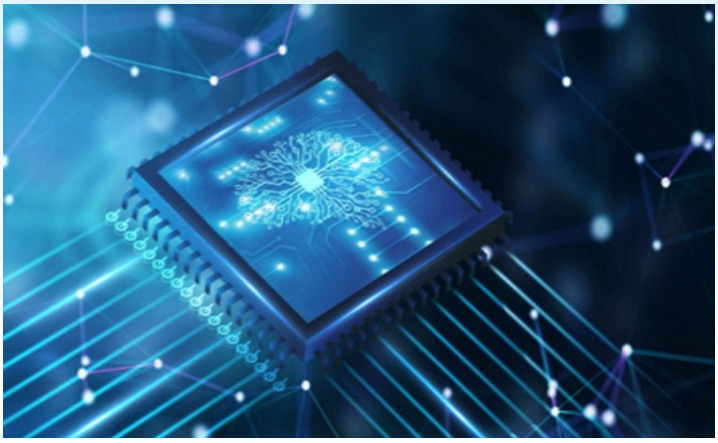
One of the cornerstones of our department's success lies in our dedicated and highly qualified faculty team, consisting of **Twenty-Five** faculty members. They bring with them extensive teaching, research, and industry experience, enriching the learning environment for our students. To facilitate cutting-edge education, Our **Autonomous curriculum** is thoughtfully designed to align with industry requirements and foster entrepreneurship development. We offer specializations in **Six streams.** To promote holistic learning, we have adopted a project-based and skill-based approach to the teaching-learning process, providing our students with practical experience and problem-solving abilities. We maintain well-equipped laboratories and smart classrooms, integrated with state-of-the-art infrastructure and high-tech gadgets. Additionally, we take pride in our Centre of Excellence in Health and Smart Technology, which strives to address societal health needs and benefit mankind through technological solutions. Our commitment to bridging the gap between academia and industry is evident through the multiple **MoUs** and Collaborations with research organizations. We emphasize continuous learning and skill development by organizing International Conferences, Faculty Development Programs, Skill Development Programs, Workshops, Seminars, and Invited Talks through professional bodies ISTE, IEEE, and IEI, benefiting both students and staff alike.

Dr. Yasha Jyothi M Shirur
Professor & Head, Dept. of ECE

Technical Articles

Implementation of AI/ML in VLSI Design Technology

The trending buzzwords artificial intelligence, machine learning, and deep learning are no longer confined to the IT or software domain, the Very Large Scale Integration (VLSI) industry has also started adapting these techniques in design automation as it provides the opportunity to transform the whole chip design methodology. Recent advancements have been made in the VLSI industry and there is a gradual change from VLSI to ultra-large-scale integration. Hence automation of design is now a necessity. For automation, the very first step is the development of design using CAD (Computer Aided Design) tools. For each step of chip design, there is a CAD tool to handle the tasks and solve the problems effectively, but the efficiency of the tools decreases when we try to put all these tools together in one package. To overcome this issue, the VLSI industry took a turn towards introducing AI techniques in design automation. The unique strategies of AI provide numerous exciting automated approaches for handling complexities and data-intensive tasks in VLSI design and testing. Employing AI and ML algorithms in VLSI design and manufacturing reduces the time and effort needed to understand and process data within and across different abstraction levels via automated learning algorithms, which in turn improves yield and reduces manufacturing turnaround time.



The revolution in the field of electronics with the advent of complementary metal-oxide semiconductor (CMOS) transistors in the IC industry was triggered. The realization of complex digital systems on a single silicon chip is enabled by modern VLSI technology. The total turnaround time of the chip depends on the performance of electronic design automation (EDA) tools in overcoming design constraints. The traditional rule-based technologies in EDA take a long time to yield optimal solutions. Once the data is fed back, it is difficult and time-consuming for the designers to understand the underlying functionalities, such as the root cause of issues and apply the fixes, if required, which finally leads to time-to-market delay. The principle of AI is based on human intelligence, interpreted in such a way that a machine can easily mimic and execute tasks of varying complexities. ML is a subset of AI. The goals of AI/ML are learning, reasoning, predicting, and perceiving. They can handle multidimensional and multivariate data at high computational speeds. These algorithms continuously gain experience and improve the accuracy and efficiency of the predictions.

Further, they also facilitate decision-making by optimizing the design process. VLSI CAD tools are becoming increasingly challenging and complex with the tremendous increase in the number of transistors per chip. AI and ML algorithms are steered and designed to achieve relatively fast turnaround time with efficient, automated solutions for chip fabrication. Employing ML in IC design and manufacturing augments reduces data analysis time and effort and optimizes the design flow.

Here are two examples where AI is employed in various stages of design flow:

AI for Placement: Placement is a crucial stage in VLSI design flow wherein the physical locations of the logic gates in the circuit layout are determined. Already existing analytical placement techniques handle them sub-optimally. For designs with many embedded data paths, extracting and placing them appropriately for high-quality placement is crucial. However, due to technological constraints, modern placers fail to handle data paths effectively, this is where ML plays a key role. The data path extraction method uses SVM (Support Vector Machine) and ANN (Artificial Neural Network) techniques where SVM can achieve global optimization by maximizing the separation margin and making ANN more robust to noise.

AI for clock tree synthesis: The overall power in the final complete chip design is contributed by the clock network; therefore, it is important to have an optimized clock tree that prevents design problems such as excessive power consumption, high routing congestion, skew, and elongated timing closure. Several ML algorithms have been proposed to automate predicting the clock network metrics. Data mining tools are used to achieve skew and insertion delay. ML tools can be used to analyze the extracted information and knowledge from different stages of manufacturing for troubleshooting and defect diagnosis, which increases the turn-around time.

Employing AI/ML in the VLSI design process provides high-end solutions and eases the design process. They have been bringing innovations in the VLSI fields and helping to save the most essential asset- time. AI and ML algorithms in VLSI design and manufacturing reduce the time and effort needed to understand and process the data within and across various abstraction levels. These algorithms improve the IC yield and reduce the manufacturing turnaround time. AI/ML solutions can be used in VLSI–CAD for design-flow optimization. Independent ML models can also drive the existing EDA tools. AI and ML can provide breakthrough solutions to future semiconductor challenges.

Source: https://arxiv.org

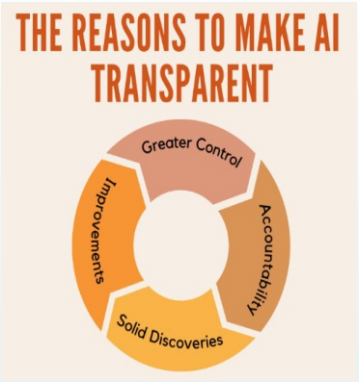
Vaishnavi P Kumar
VIII ECE B

Ethics and AI

Artificial intelligence (AI) is a word floating around the social media and professional sectors as one of the most useful yet threatening systems. Generating texts, presentations, music, and even videos, the capability of AI is increasing day by day. It will not be surprising that as time passes, AI software will replace many human-oriented jobs. To make good use of it or to prevent over-exploitation of AI, ethics involved in using it plays a huge role.

✓ Are AI systems transparent and accountable?

The transparency and accountability of AI systems have been a topic of much discussion and debate exploring these issues from some of the ongoing research and some of the relevant statistics are:



- In a survey conducted by Accenture involving around 3,000 people, over 86% of them have shared their opinion that companies need to be transparent about how they use AI for decision-making.
- According to a report by the AI Now Institute, only 13% of the top 100 AI companies provide any information about their AI systems' impact on society, and only 34% disclose the data used to train models.
- According to a report from the World Economic Forum, transparency and accountability in AI systems are very much needed in healthcare and finance, where consequences can be significant.

  Ultimately, these statistics suggest that while there is growing recognition of AI's transparency, much work must be done to ensure the data security used to generate these AI systems.

✓ What is the role of humans in AI decision-making?

While AI systems process data to make their decisions and responses, humans are still essential in ensuring that AI is used responsibly and ethically. Here are some ways in which humans can play a role in AI decision-making,

- Oversight and Regulation: Developing ethical guidelines and creative regulatory frameworks for AI generation and acquisition to promote transparency and credibility.
- Training and Validation: This involves data cleaning, data labeling, and data validation that is done manually to ensure that the data used for AI model training is safe, accurate, and unbiased.

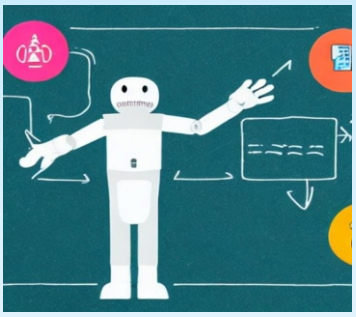
Ultimately, AI generates a ton of recommendations and it's we who are still in the position of decision-making and mitigating bias.

✓ What are the potential risks of AI in education?

AI, as a means of reducing human effort, can generate anything precisely and correctly when asked. However, the same feature can be overused by students and the education system itself as a whole, which will, unfortunately, reduce human interactions and human involvement in the mentoring sector.

Many AI generators such as chatGPT, DALL.E2, mid-journey, and many more reduce human effort and will make it hard to evaluate a person's effort. Deciding whether a work is original or is generated by AI is one of the significant issues raised in the education sector.

Although it is beneficial to students, overdependence on AI would diminish creativity and active problem-solving skills. Some statistics supporting this point of view are:



- In a study conducted by Adobe, 71% of educators and 67% of policymakers surveyed believed that technology is decreasing students' ability to think critically and creatively.
- In a survey conducted by Microsoft, 46% of business leaders need help finding candidates with the right mix of technical and soft skills, including problem-solving and creativity.

With tons of plagiarism check software used worldwide, AI-generated data cannot be a final copy for any work. Many students getting caught in several universities for plagiarism in their works, assignments, etc, lead to a 'culture of suspicion'; which is unhealthy for the future.

✓ If AI is used ethically.

AI is considered a threat only when it is not under the data usage guidelines; on the other hand, AI can be a lot more useful if used ethically. AI software plays a huge role in today's technology, and almost every other major company involves AI in its models. Whether it's object recognition, humanoid robots, automatic gadgets, etc., every other industry, be it sports, gadgets, media, and services, uses AI to improve the quality of customer support.

According to a survey by the IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems, 75% of respondents agreed that AI developers should be held responsible for the ethical implications of their systems, and only then will AI-powered methods be beneficial.

The bottom line is that Ethics and AI should go hand in hand to quote AI generation as a healthy task. Moreover, this ethics mainly depends on the extent and domain of human usage.

"Any sufficiently advanced technology is indistinguishable from magic"

- Arthur C. Clarke

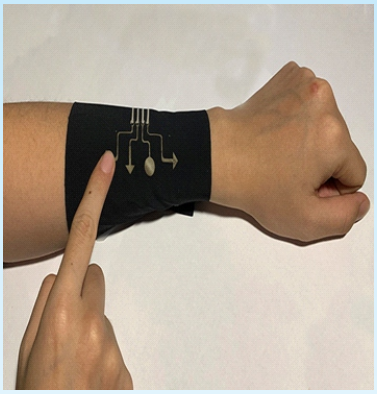
Dheemanth. B
III ECE A

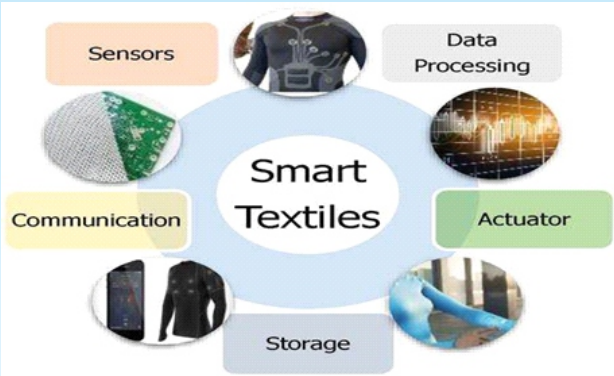
Smart E-Textile Systems: For Healthcare Applications

E-textiles is a new hybrid field developed with the help of integrating electronic components into our daily usage of textile products. These wearable e-textiles provide user-defined applications as well as everyday textile clothing. The medical field is one of the major leading areas where these new hybrid products are implemented, and mature products can be observed in the laboratory and commercial markets. These products are developed for continuous patient monitoring in large-scale hospital centers and customized patient requirements.

Modernization and digitalization are enhancing human life expectancy as we now have better resources to fight diseases and detect them at their early stages. Novel techniques and user-defined products are attractive to people to facilitate their daily lives. Mobile phones and the internet are examples. Currently, mobile phones are not only for communication via calling and messaging but are also related to daily activities, including banking services, fitness, and health monitoring. The concept of wearing clothes started with cultural evolution to cover body parts. However, with time, textiles are now not only used for wearing purposes but have multiple value-added options. Currently, user-defined textile wearables are widely involved in numerous fields, including medical, sports, military, and defense-related projects. Smart textiles can be defined as textiles that can sense and respond to stimuli from the external environment. Smart Textiles can be divided into two types, namely active and passive. Active smart textiles generally contain sensors and actuators to connect the internal parameters to the transmitted message. Passive smart textiles can change their properties according to environmental stimulation.

The smart textile market is flourishing day by day. Changes in human habits and the demand for user-defined facilities have increased the importance of e-textile systems in the regular textile market. Medical e-textiles were the first area where smart textile products were introduced. The progressive development of electronic systems integration into textiles for e-textile systems and their applications has increased consumer awareness in this newly emerging field, which has witnessed a growing investment in e-textiles and their associated industries.





The area of healthcare and medical treatment devices is rapidly growing and increasingly includes textile structures as substrates or even active systems. Several issues still have to be addressed; among them, the reliability and washability of the e-textile systems are among the most important. Currently, activities leading to the establishment of wearable e-textile standards and testing methods are intensively driven. Several groups are working on a global level to help the electronics industry design and produce their components and devices to make them compatible with the soft, lightweight textile structures and their specific uses in the medical and healthcare systems.

Nandhini K R
VIII ECE A

STAFF ACHIEVEMENTS

Patents

- Mentors **Dr. Jyoti R Munavalli,** and **Smt. Sumathi A** with Student inventors **Rishabh Bansali, Raghavendra,** and **Vishnu Bhat A** have been granted a patent titled "Smart detachable faucet" on 20th December 2023. NewGen IEDC-BNMIT funded the project.
- **Dr. Yasha Jyothi M Shirur,** Dr. N. V. Uma Reddy and Dr. Manju Devi, Dr. Raghavendra Reddy N V and T Vignesh filed a patent titled "Comfort Guardian Robot for Elderly People" Application No.: 402844001, 22-12-2023.

Journal publications

- **Lakshmi Bhaskar** published a paper titled "Performance analysis of CC- LEACH" in the HTL Journal Volume 28, 346-354, Issue 7 in July 2023.
- Bharathi M, Krithikaa Mohanarangam, **Dr. Yasha Jyothi M Shirur,** Jun Rim Choi published a paper titled "Accelerating DSP Applications on a 16-Bit Processor: Block RAM Integration and Distributed Arithmetic Approach" in Journal Electronics (MDPI) 12, no. 20: 4236, Web of Science SCIE Q2 journal, October 2023. https://doi.org/10.3390/electronics12204236. With Impact factor 2.9.
- Nirmalkumar S. Benni,.**Manjunath G. Asuti,** Arun Kumar G, T.C.Manjunath published a paper titled "Simulation, design, fabrication and computer control of a four – axes CRUST 2020 stationary articulated robot selective compliance assembly (SCARA) robotic manipulator arm," in the Journal of Propulsion Technology, Vol. 44 No. 4, December-2023.
- **Ashwini S Savanth, Lakshmi Bhaskar, Sumathi A, Sunitha S V, Sarala T,** published a paper titled "Robotic Arm controlled using Electromyography Signals", in the TIJER, ISSN 2349-9249, December 2023, Volume 10, Issue 12

Conference publications

- **Priya R Sankpal, Sumathi A** and **Jyoti R Munavalli** presented a paper titled " Pedagogical Approach: A Paradigm Shift From Teacher-Centric To Student-Centric Teaching Learning Process", in the 6th ICIER International Conference on Strategic Agility and Resilience: Benchmarks & Best Practices, 14th – 15th December 2023, Bangalore, India.
- **Smitha Gayathri. D,** Dr. K.R. Usha Rani, **Dr. Subodh Kumar Panda** presented a paper titled "Topology Estimation and Analysis of Broadband PLC Using SELT" at the ICOCS -the International Conference on Communication Systems 2023 organized by the Department of Electronics and Communication Engineering, NIT Puducherry from 21st -22nd December 2023.

Awards and Recognition

- **Dr. S Y Kulkarni,** Professor in ECE & Additional Director of BNMIT was awarded "Director of the Year 2023 - Research and Development" by Academic Insight in the Academic Excellence Award Function held on 17th December 2023 in Bangalore.
- IEEE Bangalore section wholeheartedly appreciated **Dr. Bindu S** for her Outstanding dedication, unwavering support, and exceptional leadership as branch counselor in the year 2023.
- IEEE Advancing Technology for Humanity honored **Dr. Bindu S** as an IEEE Senior member.
- **Mrs. Rashmi Bhaskar,** Assistant Professor in the Dept of ECE was awarded the Ph.D. degree in the VTU Convocation held on 1st August 2023.
- **Dr. Priya R Sankpal** completed a project titled "Smart Campus using LoRa" under the MoU between Dept. of ECE and AutoTec Pvt. Ltd, Bengaluru in collaboration with IEDC cell, BNMIT in August 2023. The project was carried out by the student team comprising **Abhishek D., Maharishi K N, Kalle Sai Kiran, Rajashekhar V, Rohith J. E., Safeer Shah,** under the mentorship of Dr. Priya R Sankpal, and Sri Sridhar V, Technical Consultant, AutoTec, Pvt. Ltd.
- **Mrs. Sunitha S V** under the guidance of Dr. Shivaputra, Assistant Professor, Dept of ECE, Dr.AIT, Bangalore defended her Ph.D. thesis titled "Improving the Intelligibility of Dysarthric Speech" on 2nd September 2023.
- **Dr. Smitha Gayathri D,** Associate professor, ECE was a reviewer for AICTE Sponsored IEEE International Conference on Networks, Multimedia and Information Technology (NMITCON) organized at Nitte Meenakshi Institute of Technology, Bengaluru India during 1st and 2nd September 2023 in association with IEEE Bangalore Section.
- **Dr. Jyoti R Munavalli,** Dr.Neetha Mahadev, Dr. R. Sarala R, IIHMR-B, Dr. Deepika Joshi, St. Joseph's Institute of Management, Bangalore received ICSSR funding of 12 lakhs for the project titled "Awareness, Utilisation and Socio-Economic Impact of PMBJP Kendra in the selected districts of State of Karnataka", on 15th September 2023.
- **Mrs. Sujaya B L** under the guidance of Dr. S B Bhanu Prashanth, Professor in Dept of Medical Electronics, BMSCE, Bangalore defended her Ph.D. thesis titled "Modeling and Characterisation of Efficient Transceiver Framework for Intrabody Communication" on 4th October 2023.
- **Dr. Ashwini S Savanth** completed a project titled "Camera Traffic Generator" under the MoU between the Dept of AIML and Senquire Analytics Pvt. Ltd., Center of Excellence, in November 2023. The project was carried out by the student team comprising **Vineeth Bharadwaj, Ujwal Ramesh Karajgikar, Vyshak T M, Unnathi G D, Saket Raj, and Pranav Upadhyay** from ECE under the mentorship of Dr. Ashwini S Savanth and Mr. P. S. Ravindranath, Senior Vice President, Senquire Analytics Pvt. Ltd., Center of Excellence, BNMIT Campus.
- **Dr. Smitha Gayathri D,** Associate professor, ECE was a reviewer for AICTE Sponsored IEEE International Conference on Ambient Intelligence Knowledge Informatics and Industrial Electronics (AIKIIE-2023) organized by Rao Bahadur Y. Mahabaleswarappa Engineering College Ballari held on 02-03 November 2023.
- **Dr. Ashwini S Savanth** completed a project titled "Quickshare Application Log Anomaly Detection" under Samsung PRISM projects in December 2023. The project was carried out by the student team comprising S N Shreyas, Tejas Kodoor, Parth Kumar Tiwari (Department of CSE), Hemashri P (Department of ISE), Kotta Snigdhasree (Department of AI&ML).
- **Dr. Bindu S** was presented a Certificate of appreciation for enthusiastic participation as a mentor for the six-month online internship on "Designing the Delta modulation transmitter and receiver" from June 15th to December 15th, 2023 under IGNITE -Student Internship Program conducted by IEEE Communication Society Bangalore Chapter.

STUDENT ACHIEVEMENTS

Awards and Recognition

- **Nandika R** secured 2nd University Rank for ECE with a CGPA of 9.6. She was awarded in the 23rd VTU convocation held on 1st August 2023.
- **Dhanush** and **Manu** of 7th sem ECE secured the best internship project award in the Internship conducted by IEEE CASS, Bangalore section for CAS student members held at Dayananda Sagar College of Engineering on 9th December 2023.

Journal Publications

- **Swathi Dayanand, Dr.Chaitra N** published a paper titled "Impact and Feasibility of Harnessing AI and ML in the Realm of Cybersecurity to Detect Network Intrusions: A Review" in the International Journal of Recent Technology and Engineering (IJRTE), July 2023.
- N. Shesha Prasad, **Bhavana V, Abhiram C, Anshika Philo Nivedha K** published a paper titled "The synthesis of bioacoustic music using plants" in the International Journal of Creative Research Thoughts (IJCRT), July 2023.
- **Rohan S, Suhas R Vittal, Neeraj H Gowda, and Priya R Sankpal** published a paper titled "Face Shape Classifier Using Deep Learning" in the Journal of Innovative Research in Science, Engineering, and Technology (IJIRSET), July 2023.
- **Savanth, A.S., T, A., Gowda, D.M. and Zubair, M.,** published a paper titled "Video Based Fire Detection and Alert System," in the International Journal of Science and Engineering Invention, Aug. 2023, 25 – 29, DOI:https://doi.org/10.23958/ijsei/vol09-i08/256.
- **Disha V Kumar, Harshitha N, Pranathi C N, D R Neha, Lakshmi G C, Prathibha B S** published a paper titled "Review on Coral Reefs and their Conservation Using AI and other Technologies", in GRADIVA Review Journal, Volume 9 Issue 8, August 2023, pg 33-44, 2023, ISSN no: 0363-8057
- **Meghana S, Dr. Subodh Kumar Panda** published a paper titled "Design and implementation of an adaptive edge enhanced color interpolation processor for image applications" in the GIS Science Journal in September 2023.
- **Nagavalli S, Munavalli J R.** published a paper titled "Artificial Intelligence in VLSI Routing: A Review" in the International Journal of Scientific Research & Engineering Trends, Vol. 9, Issue 3, 2023
- **Sarala T, Kiran K N, Pragathi Panda, Raksha Nagendra, and Suguna Chandrasekhar,** published a paper titled "Design and Implementation of I2C AND UART BLOCK IMPLEMENTATION FOR RISC-V SOC" in the International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056 Volume: 10 Issue: 09 | Sep 2023

Conference publications

- **Srikar. M, Varsha M, Suhaas S. Sastry, Sampreeth S., and Priya R Sankpal** presented a paper titled "Alzheimer Staging and Detection User Interface using Neural Networks," at the 2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT), Delhi, India, July 2023, pp. 1-5, doi: 10.1109/ICCCNT56998.2023.10307055.
- **Hemanth Prasad N, Hrishikesh G Rayasa, Dr. Yasha Jyothi M Shirur** presented a paper titled "Design and Verification of AMBA APB BUS Protocol using Verilog HDL" at the IEEE International Conference on Multidisciplinary Research in Technology and Management (MRTM-2023) held on 22nd and 23rd September 2023. Scopus Indexed.
- **Sunitha SV, Vaishnavi CM, Trupti R, and Shilpa R** presented a paper titled "Biometric Door Access System Using Arduino", at the IEEE Fifth International Conference on Advances in Electronics, Computers, and Communications (IEEE Conference record no:59324) held on 7-8 September 2023.
- **Disha V Kumar, Pranathi CN, Harshitha N, D R Neha, Lakshmi G C** presented a paper titled "Green Synthesis of Silver Nanoparticles using Tulsi (Ocimum Tenuiflorum) and Neem (Azadirachta Indica) leaf extract and their Antimicrobial Activities" in the International Conference on Advanced Materials and Fluid Mechanics (ICAMFM-2023) held on 23rd and 24th November 2023 at BNMIT, Karnataka, India.

DEPARTMENTAL EVENTS

Center of Excellence in Healthcare and Smart Technology in association with the department of ECE and funded by **NewGen IEDC** organized a faculty development program on **"Emerging Healthcare Technology"** from 11th to 15th September 2023.

*The resource persons for the FDP were **Dr. Shyam Vasudcva Rao,** Founder & Director, Rcnalyx Health Systems; **Dr. Bharath Kumar Hegde,** CEO of Autoyos Pvt Ltd; **Dr. Veena S. Chakravarthi,** Accelerated Customer Education (ACE), Synopsys; **Dr. Ganesh R Naik,** Research Theme Co-Lead - Sleep Neuroscience and Novel Biomarkers, Flinders University, Adelaide, Australia; **Dr. Rajakumar Rajasekeran,** Prof., SCOPE, Vellore Institute of Technology, Vellore; **Sri. Ravi Ramaswamy,** CEO, RV Consultants; **Dr. Andhe Pallavi,** Professor and Head, EIE, RNSIT; **Dr. Aruna Korlimarla,** Principal Scientist, Sri Shankara Cancer Hospital and Research Centre; **Dr Aakash Prabhune**, IIHMR; **Mr. Keshav Karthik,** Head Software Development, Ray Vector; **Sri. Chandrasekhar,** Sangam One, Connected Services Pvt. Ltd.; **Dr. Bindu S,** Professor, BNMIT.*

The Department of Electronics and Communication Engineering in association with **IEEE-BNMIT Student Branch** organized an industrial visit to SVYASA, Swami Vivekananda Yoga Anusandhana Samsthana on 14th September 2023. Fifty-three students with faculty members participated in the industrial visit. Dr. Vijaya Majumdar, Associate Professor SVYASA and a lead researcher guided the industry visit. The visit delved into the cutting-edge research facilities at SVYASA part of the ANVESHAN Program, particularly the Advanced Research Laboratories under the leadership of Dr. Vijaya Majumdar.

The participants visited various laboratories including Molecular Bioscience Lab, Cognitive Neuroscience Lab, Psycho-Physiology Lab, and Bioenergy Psychology Lab. Each of these labs is dedicated to understanding the intricate interplay between physical, mental, social, and spiritual dimensions of human existence.

The Department of Electronics and Communication Engineering under **The Institution of Engineers (India) Students Chapter – ECE, BNMIT** organized a poster-making competition on account of the "National Education Day 2023" on 11th November 2023. The poster-making contest was organized to commemorate and celebrate the birth anniversary of India's first education minister Maulana Abul Kalam Azad.

Dr. Smitha Gayathri D addressing the students during the National Education Day 2023. The National Education Day 2023 poster-making contest event provided an opportunity for the students to understand the importance of education, making education a priority and making education easily available for all. The event made the students recognize and appreciate the contributions of Maulana Abul Kalam Azad in promoting education and educational activities in India.

The Department of Electronics and Communication Engineering under **The Institution of Engineers (India) Students Chapter – EC*E*, BNMIT** organized an Industrial Visit to Tessolve Semiconductor on 2nd December 2023. The industry visit was to a company that deals with Silicon semiconductors and System Productization.

The visit primarily focused on the topic of Test Engineering. It started with a brief note on the steps involved in the process of creation of ICs, chips, and circuit systems starting from the wafers created from Electronic Grade Silicon to the electronic products that reach a manufacturer of electronic devices. The role of a Test Engineer was explained in detail with the processes involved in the work of a Test Engineer, along with a tour of the Test Labs and the equipment involved in the labs.

MathWorks *presented a certificate of appreciation to the* ***Department of ECE*** *in recognition and appreciation of the department's continued support in adopting MATLAB and Simulink in the curriculum, student projects, and research in December 2023.*

FROM ALUMNI'S DESK

Alumni's Achievement

BNMIT felicitated Nagabhushana S for his achivement during the Alumni Meet

Nagabhushana S (ECE- 2014 Graduate) *cleared the Indian Forest Service exam by securing* ***111th rank****. Nagabhushana S, being passionate about conservation and environmental management, wanted to pursue the* ***Indian Forest Service (IFS)****. It is one of the three All India Services (AIS), along with the Indian Administrative Service and Indian Police Service.*

Alumni's Achievement

BNMIT felicitated Vineetha Sathyanarayana for her achivement during the Alumni Meet

Vineetha Sathyanarayana (ECE- 2011 Batch) *a meritorious engineer in Electronics and Communication, holds a Post Graduate Diploma in Financial Management from IGNOU and is pursuing a Master of Business Law from the National Law School of India University, Bengaluru. She has served the Government of India for over 7 years as Additional Assistant Director. Her distinguished career in Central Services began in 2015, where she has made significant contributions across various agencies under the Ministry of Finance. Her tenure has been marked by her exceptional ability to implement and enforce government policies, navigate complex trade-related challenges, and lead critical investigations into GST and Customs duty evasion.*

Alumni Speaks…..

Always choose the right path to achieve your highest goals. BNMIT has paved that path for all its students, making it easy to walk towards success. I am a prime example of this—I achieved a Gold Medal after a 15-year gap in my education. This was possible thanks to the dedicated, motivated, and friendly staff. I am deeply grateful to Dr. Yasha Jyothi for her encouragement and support.BNMIT's management fosters a friendly relationship between staff and students. I felt like a new student starting school for the first time, and the wonderful staff made this incredible journey possible. I will always remember them fondly. BNMIT is truly the place to shape your future and career.

Roopa E
M.Tech (VLSI Design and Embedded Systems)
Year of Graduation: 2022
Batch: 2020-2022
1st Rank Holder, VTU Belgaum

Alumni Speaks…..

Mahatma Gandhi rightly said, "Live as if you were to die tomorrow. Learn as if you were to live forever." The most appealing aspect of learning is that it never ends. The amount of knowledge you gain has no boundaries. This serves as the cornerstone of the exceptional and fruitful education that BNMIT offers.

It is undeniable that my time at BNM has been memorable and rewarding. BNM strives to foster leadership skills, a sense of teamwork, and a supportive environment for its students because it values each student's holistic development.

Throughout my four years at BNMIT, I recognized that professors have always been my backbone; they motivate and strive to make the teaching-learning process an enjoyable endeavor for both teachers and students alike.

In addition to having highly competent teachers, the institution ensures that students have access to the most recent technology and have efficient labs as part of a curriculum emphasizing new-generation technologies. BNM not only prioritizes academics, but it has also constantly promoted students' interest in sports and other artistic pursuits. All in all, I treasure every second I have spent at BNMIT.

I shall always be indebted to my alma mater for setting the path for my successful future and enabling me to become the person I am today.

Merlin Andriana Lobo
Year of Graduation 2022
Pursuing MS in Communications and Electronics Engineering
Technical University of Munich, Germany