### SHRI VISHNU ENGINEERING COLLEGE FOR WOMEN :: BHIMAVARAM (Autonomous)

#### ANNUAL REPORT :: 2023-24

### **Institute Profile:**

Shri Vishnu Engineering College for Women (A) - SVECW was established in 2001 to cater to the needs of the aspirations of rural girl students in the field of engineering education. Since its inception with three undergraduate programs with an intake of 180 students, the college has incrementally added more programs. Presently, there are seven undergraduate and five PG programs with an intake of 1074.

Over the years, SVECW has been recognized by various national and international bodies such as NBA, NAAC, NIRF, AIIRA, AICTE – CII Survey, AICTE – USVA 2020, MHRD – IIC, IMC, APQO and QEEE, as an institute of excellence.

The Industry Relations of SVECW is one of its kinds with multi-layered support system. The network of offices in Hyderabad, Chennai, Bengaluru, Pune, and Vadodara will be in constant touch with diversified industries across the country to pursue placements, internships, industry - academia interaction, R&D collaborations etc. Leadership is actively involved in promoting change in education and industry collaborations by taking active role in Industry Bodies such as NASSCOM, CII etc.

SVECW also has MoUs with many companies (IT as well as core) in designing the industry specified curriculum, faculty development, certifications for students etc. These activities help students and faculty to stay ahead of their peers in acquiring the latest technologies and skills.

SVECW works with organizations such as TalentSprint, Smart Interviews, ELEPHOS, VINEX, TIME and Foreign Language Programs on specific Academic Programs to help students get the skillset before they graduate and be ready to be productive for hiring organizations from Day-1. Skill promotion has helped students perform consistently, be superior in many competitions organized by Industry. The examples are Hackathons or coding or project competitions.

These initiatives always stand SVECW consistently ahead of others in placements from 2015 onwards in top MNCs such as Amazon, Flipkart, Adobe, Caterpillar, ZOHO, JohnDeer, Providence, American Express etc.

SVECW is proud of its uniqueness in many ways. To mention a few:

- ✓ Radio Vishnu 90.4, the only college in A P state to have FM Radio
- ✓ Rural Women Technology Park
- ✓ FIST
- ✓ Assistive Technology Lab
- ✓ IUCEE
- ✓ Vehicle Design Lab
- ✓ IoT Lab
- ✓ TBI

The college has MOUs with academia such as Central Michigan University, University of Massachusetts, Community College of Philadelphia, Purdue University, Northern Illinois University and IEG, GC German Center for Engineering and Management Studies UG Aachen and European Center for Mechatronics APS GmbH Aachen, and University of Bolton.

The college believes that teaching and research are interlinked. In order to ably do this, the college gives financial assistance to faculty to pursue higher education through initiatives such as reimbursement of tuition and registration fee for Ph.D Programs, leave with pay for post graduate and Ph.D Programs, financial assistance to attend and conduct conferences and workshops. The college acknowledges and honors teachers with special talents and competencies with awards and monetary rewards.

The college's knowledge hub, the library houses a large number of books and journals both print and online to cater to the intellectual needs of faculty and students.

The teaching-learning is given top priority. Some of the unique features of the curriculum include:

- ✓ Open Electives
- ✓ Pre Electives
- ✓ Self-phase Learning Courses
- ✓ Art Courses
- ✓ Value Added Courses
- ✓ Internship support
- ✓ Bridge and Remedial Courses for slow learners

To cultivate research mindset in students, they are encouraged to become members of a number of professional bodies like ISTE, SAE, CSI, IETE, IEEE, IET and ICI. Some of the economically weak students are given fee waivers, opportunities to earn while they learn and financial assistance in participating at state/national level conferences/seminars etc.

Apart from the curriculum, the students are engaged in a large variety of projects. Some of which are: Visitor tracking system, Unmanned autonomous boat, Bamboo Bicycle, E-stick, Braille Printer etc.

The students of SVECW have the advantage of pursuing their interests and hobbies through a 28 student clubs to showcase their creativity and develop their leadership skills.

To mention a few: CodeChef SVECW Chapter, Toastmasters International Club, SAHAYA, IDEA Club, Amateur Astronomy Association, Eco-friendly Club, MECOW etc.

Amenities at SVECW include 1200 capacity of a/c auditorium, Open air auditorium, electricity power backup, computing facilities, RO Plant, water sewage treatment plant, hostels, book store, Bank, post office, photo studio, tailoring shop, car driving institute, ATMs, beauty parlour, convenience store and temples, boat club, swimming pool, Radio Vishnu, Vishnu TV Academy, Music Club etc.

The well-equipped gymnasium and dedicated Psychology department with qualified staff provide recreation through mental and physical fitness.

### Education at SVECW is an experience.

# Vision of the Institute

Transform the society through excellence in Women's Education, Community empowerment and sustained Environmental protection.

# Mission of the Institute

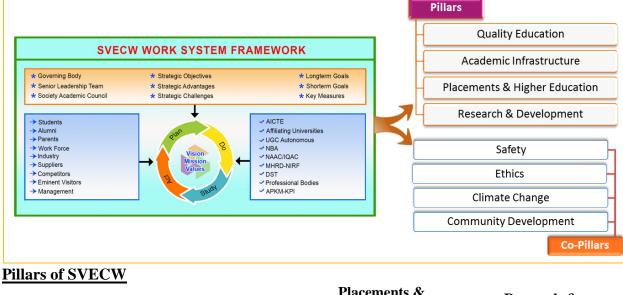
- ✓ To achieve Academic excellence through innovative learning practices
- ✓ To instil self confidence among rural women students by supplementing with cocurricular and extra-curricular activities
- ✓ To inculcate discipline and values among rural women students
- ✓ To establish centers for Institute Industry partnership
- $\checkmark$  To extend financial assistance for the economically weaker sections
- ✓ To create self employment opportunities and skill up gradation
- ✓ To support environment friendly Green Practices
- ✓ Creating innovation hubs

## Values of the Institute

- $\checkmark$  We strive for excellence in all that we do in order to model success for our students
- $\checkmark$  We focus on students' success and satisfaction and meeting the needs of the community
- ✓ We take pride in the quality of our organization and work, and we value, originality, integrity, consistency, and attention to detail
- ✓ We stay abreast of ever-changing youth culture, emerging communication technologies and design trends
- ✓ We set benchmarks and model high quality standards for students, faculty, staff, and community partners
- $\checkmark$  We lay utmost importance on discipline, punctuality, personal values and healthy practices
- ✓ We create an innovative environment for students and staff to develop an integrated personality
- ✓ Inclusive community projects

Work System of SVECW

In SVECW, the accountability is accomplished with an efficient and effective work system framework commissioned since inception of the institution. The agile featured SVECW work system framework mainly focuses on Quality Education, Infrastructure, Placements & Higher Studies and Research & Development as its Pillars. It also in-tune with ethics, innovation, mend with safety and adaptable for any climate change as its Co-Pillars presented here.



### **Quality Education**

#### Infrastructure

- ✓ Teaching-Learning Zone:
  - **Direct Instruction**
  - Problem Based
  - Co-operative
  - Activity Based
  - Case Based .
  - Small Group Teaching
  - Virtual
  - Project-Based
- ✓ Micro level lessen plan
- ✓ Guest Lectures
- ✓ Workshops
- ✓ Professional Bodies
- ✓ Industrial Visits
- ✓ Webinars
- ✓ Orientation Programs
- ✓ OEEE
- ✓ NPTEL, e-content
- ✓ MOOCS
- ✓ Google Classroom Learning
- ✓ Student Clubs
- ✓ TEOIP
- ✓ Project Exhibitions

- ✓ VEDIC
- ✓ Centers of Excellence
- ✓ State-of-the-art-Laboratories
- Central Library
- ✓ Knowledge Center
- ✓ Modern Auditoriums
- ✓ Campus Book Stores
- Wi-Fi Campus  $\checkmark$
- ✓ Radio Vishnu
- 90.4CR
- Vishnu T.V Academy
- ✓ ECAP
- ✓ PACT
- Campus Hostel √
- $\checkmark$ Food Courts
- ✓ Fitness Centers
- Staff Ouarters
- ✓ Swimming Pool
- ✓ Sports Complex

- ✓ Driving School
- ✓ Bank & ATMs

### **Placements &**

### **Higher Education**

- ✓ TAP team
- ✓ Industry-Institute Interaction Cell
- ✓ Placement Liaison Offices
- ✓ Career Guidance Cell
- ✓ Placements Internal
- Training ✓ Placements External Training
- ✓ Foreign Languages
- ✓ APSSDC
- ✓ Industry MOU's
- ✓ Internships
- ✓ Placements
- ✓ Mission R & D
- Embedded Co-curricular Calendar
- ✓ Industrial Visits
- ✓ Entrepreneurship Cell
- ✓ Mentoring/Customization
- ✓ Certification Courses
- ✓ GATE/GRE Training

- **Research & Developmnet**
- ✓ R&D Centers
- ✓ Research Labs
- ✓ Founded R & D Projects
- ✓ Faculty Publications
- ✓ Student Publications
- ✓ Book Publications
- ✓ Patents
- ✓ ATL
  - ✓ Multi-Disciplinary Projects
- ✓ MOU'S with R & D organization
- ✓ Consultancy
- ✓ Incentives
- ✓ Interaction with Eminent Researchers
- ✓ Faculty Development Programs

- ✓ Technical Events
- ✓ VKC / VEMC
- ✓ Psychology Department

### <u>Co-Pillars</u>

### **Community Development**

- ✓ Rural Women Technology Park
- ✓ Swarna Bharath Trust
- ✓ Blood Donation Camps
- $\checkmark$  Donations
- ✓ Smart Villages Adaption
- ✓ NSS Activites
- ✓ Sahaya Club

#### Safety

- ✓ Security Guards
- ✓ CC Cameras

✓ Power Backup

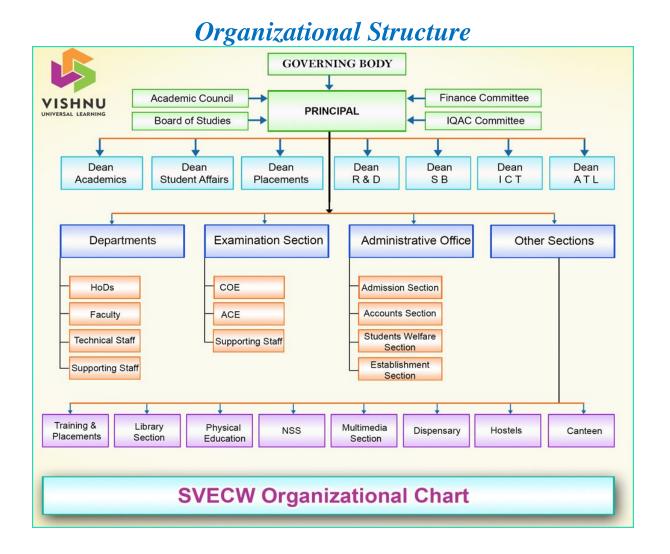
- ✓ Fire Extinguishers
- ✓ Parking Lanes with Sign Boards
- ✓ Bio-metric Gate
   Pass
- ✓ Personal protective
   Equipment

### Climate Change

- ✓ Green Plantation
- ✓ Solar Power
- ✓ Avoiding Usage of Plastic
- ✓ Harvesting Rain water✓ Sewage Water
- treatment plants
- ✓ RO water plant
- ✓ Cycling in campus
- ✓ World Earth Day

#### Ethics

- ✓ Blood Banks
- ✓ Scholarships
- ✓ Staff Welfare Found
- ✓ Ethics related courses in curriculum
- ✓ Committees
- ✓ Empathy Club



Members of Governing Body

Number	Category	Nature	Name of the Member	
Member 1	Management	Trust of Management as	Sri K.V. Vishnu Raju, Chairman, SVES	
Member 2	Management	per the constitution or	Sri Ravichandran Rajagopal, VC, SVES	
Member 3	Management	byelaws, with the Chairman or President /	Sri Aditya Vissam, Secretary, SVES	
Member 4	Management	Director as the	Sri JVSSRD Prasada Raju, Director, SVES	
Member 5	Management	Chairperson	Dr. D. Suryanarayana, Director, VIT	
Member 6	mber 6 Teachers of the College Nominated by the		Dr. P. Srinivasa Raju Vice-Principal, SVECW Mobile: 9949433561, 9848051152 Email: <u>viceprincipal@svecw.edu.in</u>	
		Principal based on Seniority	Dr. S.M. Padmaja Professor & Head, Dept. of EEE Mobile: 9849746741 Email: <u>padmaja_vvr@svecw.edu.in</u>	
Member 8	Educationalist or Industrialist	Nominated by the Management	Dr. U. Chandra Sekhar WIPRO, Bengaluru Phone: Email: rapidchandra@gmail.com	
Member 9	UGC Nominee	Nominated by the UGC	Dr. Buddha Singh School of Computer & Systems Sciences, Jawaharlal Nehru University, New Delhi – 110067 Ph: 011-26704775 (O) Email: <u>buddhasingh@mail.jnu.ac.in</u>	
Member 10	State Government Nominee	Academician not below the rank of professor or state government official of Directorate of Higher Education / State Council of Higher Education	Mr. J. Satyanarayana Murthy RJD, Technical Education, Kakinada Mobile: 9912342175 Phone: 0884-2376194 Email: <u>rjdtkkd@rediffmail.com</u> <u>rjdkkd@gmail.com</u>	
Member 11	University Nominee	Nominated by the University	Dr. D. Haritha Professor of CSE, UCEK, JNTUK, Kakinada Phone: 0884-2300866 / 9440810901 Email: <u>harithadasari9@yahoo.com</u>	
Member 12	Principal of College	Ex-Officio	Dr. G. Srinivasa Rao Principal, SVECW Mobile: 9666832284, 9949415027 Email: <u>principal@svecw.edu.in</u>	

# Members of College Academic Council

Number	Category	Nature	Name of the Member		
Member 1	Principal of College	Chairman	Dr. G. Srinivasa Rao Mobile No: 9666832284, 9949415027 Email: <u>principal@svecw.edu.in</u>		
Member 2	Industry Expert	Member	Mr. K.A. Rama Krishnam Raju Project Manager, Tech Mahindra, Hyderabad. Mobile No: 9618281828 Email: rkkalidindi@gmail.com		
Member 3	Legal Expert	Member	Mr. J.V.S.S.R.D. Prasada Raju Director (Admin.) Sri Vishnu Educational Society Bhimavaram, Mobile : 9949433568 Email: prasadaraju.j@srivishnu.edu.in		
Member 4	Educational Expert	Member	Dr. D. Suryanarayana Director, Vishnu Institute of Technology, Bhimavaram Mobile: 9949433588		
Member 5	University Nominee	Director, Academic Planning, JNTUK	Email: <u>surya_dasika@yahoo.com</u> Dr. K. Venkata Reddy, Professor of EEE & Director – Academic Planning, JNTUK, Kakinada Mobile: 7893407555 (M) Email: <u>dap@jntukdapportal.edu.in</u> / <u>kvr.jntu@gmail.com</u>		
Member 6	University Nominee	Director of Evaluation, JNTUK	Dr. B. Balakrishna Professor of ME & Director of Evaluation, JNTUK, Kakinada, Mobile: Email: <u>de@intuk.edu.in</u>		
Member 7	University Nominee	Member from University	Dr. N. Balaji Professor of ECE, UCEK, JNTUK, Kakinada Mobile No: 9502441555 Email: narayanamb@rediffmail.com		
Member 8	HOD-EEE	Member	Dr. S.M. Padmaja Mobile: 98497 46741 Email: hodeee@svecw.edu.in		
Member 9	HOD-ECE	Member	Dr. K. Padmavasavi Mobile: 94414 14651 Email: <u>hodece@svecw.edu.in</u>		
Member 10	HOD-CSE	Member	Dr. P. Kiran Sree Mobile: 94407 86023 Email: <u>hodcse@svecw.edu.in</u>		

Member 11	HOD-IT	Member	Dr. D.V. Naga Raju		
			Mobile: 99487 66686		
			Email: <u>hodit@svecw.edu.in</u>		
Member 12	HOD-CE	Member	Dr. P. Gireesh Kumar		
			Mobile: 89787 84998		
			Email: <u>hodcivil@svecw.edu.in</u>		
Member 13	HOD-ME	Member	Dr. Ch. Harikrishna		
			Mobile: 99494 33561, 98480 51152		
			Email: hodmechanical@svecw.edu.in		
Member 14	HOD – AI	Member	Dr. A. Srikrishna		
			Mobile: 88856 05656		
			Email: <u>hodai@svecw.edu.in</u>		
Member 15	HOD-MATHS	Member	Dr. D. Ravi Kiran		
			Mobile: 99125 20723		
			Email: hodmaths@svecw.edu.in		
Member 16	HOD-ENGLISH	Member	Mr. P. Srihari Raju		
			Mobile: 99898 23415		
			Email: hodenglish@svecw.edu.in		
Member 17	HOD-CHEMISTRY	Member	Dr. K. Jagadeesh		
			Mobile: 97043 34888		
			Email: hodchemistry@svecw.edu.in		
Member 18	HOD-PHYSICS	Member	Dr. J.V. Srinivas		
			Mobile: 98668 50201		
			Email: <u>hodphysics@svecw.edu.in</u>		
Member 19	HOD-MBA	Member	Dr. G. Subba Raju		
			Mobile: 99494 70637		
			Email: hodmba@svecw.edu.in		
Member 20	Teachers of the	Members	Mrs. P. Prasanthi		
	College	representing different	Asst. Professor of English, Dept. of BS		
		categories of teaching	Mobile: 94401 11470		
		staff by rotation on	Email: jprasuvarma@svecw.edu.in		
Member 21	Teachers of the	the basis of seniority	Mrs. P. Lavanya		
	College	of service in the	Asst. Professor in CE, SVECW		
		College.	Mobile: 97042 60234		
			Email: plavanyacivil@svecw.edu.in		
Member 22	Teachers of the		Mr. J.V. Narasimha Raju		
	College		Asst. Professor in ME, SVECW		
			Mobile: 94413 91190		
			Email: jvnraju1978@gmail.com		
Member 23	Faculty Member	Member Secretary	Dr. K.S.N. Raju		
			COE, SVECW		
			Mobile: 94915 33366		
			Email: <u>ce@svecw.edu.in</u>		

# Courses Offered – Intake

Details of Intake 1st year of B.Tech. M.Tech and MBA during the academic year 2023-24 are given in the table.

Course	Approved Intake
B.Tech. – Civil Engineering	60
B.Tech. – Computer Science & Engineering	180
B.Tech. – Electronics & Communication Engineering	120
B.Tech. – Electrical & Electronics Engineering	60
B.Tech. – Information Technology	180
B.Tech. – Mechanical Engineering	60
B.Tech. – CSE [Artificial Intelligence & Data Science]	120
B.Tech. – CSE[Artificial Intelligence & Machine Learning]	120
B.Tech. – CSE(Cyber Security)	60
M.Tech. – Computer Science & Engineering	18
M.Tech. – Software Engineering	9
M.Tech. – VLSI Design	18
M.Tech. – Power Electronics	9
M.B.A.	60

## **Centers of Excellence**

- ✓ Vishnu Technology Business Incubator (TBI)
- ✓ Vishnu Space Application Center (VSAC)
- ✓ Vishnu Student Success Centre
- ✓ TEDxSVECW
- ✓ AR / VR Studio
- ✓ MEDA & PLM CoE
- ✓ Science Technology & Innovation Hub (STI Hub)
   ✓ AICTE IDEA Lab
- ✓ NASSCOM Embedded Systems Training
- ✓ HCL Tech VLSI Training
- ✓ Microchip Embedded System
- ✓ Vehicle Design Lab
- ✓ Assistive Technology Lab (ATL)
- ✓ Chips to Startup (C2S)
- ✓ TI-DSP Centre of Excellence
- ✓ Concrete Canoe Laboratory
- ✓ Dream House Construction Lab
- ✓ Ultra Tech CoE
- ✓ Rural Women Technology Park WTP
- ✓ Institution Innovation Cell
- ✓ TalentSprint WISE
- ✓ Smart Interviews C&DS Programme

- ✓ High Performance Computing Lab
- ✓ Foreign Languages
- ✓ Graduate Study Abroad Center GSAC
- ✓ Radio Vishnu 90.4
- ✓ Nirvahana
- ✓ Vishnu School of Music

# **Professional Bodies**

Students' Chapters of Professional Bodies The College also organized various co-curricular activities for students through the Professional Chapters:

- ✓ Indian Society for Technical Education (ISTE)
- ✓ Institution of Electronics and Telecommunication Engineers (IETE)
- ✓ Computer Society of India (CSI)
- ✓ The Institute of Electrical and Electronics Engineers (IEEE)
- ✓ Society of Automotive Engineers India (SAEIndia)
- ✓ Indian concrete institute (ICI)
- ✓ Institution of Engineers (IE)

# Student Clubs

- ✓ AAA Club
- ✓ Tech Xtreme Club
- ✓ Story telling Club
- ✓ Sparta Club
- ✓ Happy Club
- ✓ Eco Friendly Association
- ✓ Photography Club
- ✓ Sports Club
- ✓ Painting Club
- ✓ Idea Club
- ✓ Organic Farming Club
- ✓ Fashion Designing Club
- ✓ Page Turners Club
- ✓ Mecow Club

- ✓ Splash Out Club
- ✓ Empathy Club
- ✓ TechniSafoos Club
- ✓ Toast Masters Club
- ✓ Self Defence Club
- ✓ Synergy Club
- ✓ Mathlets Club
- ✓ Future India Club
- ✓ Vishnu Music Club
- ✓ Sahaya Club
- ✓ Rockmefab Club
- ✓ Cultural Club
- ✓ Dance Club
- ✓ CodeChef SVECW Chapter

## **Placements Details**

Congratulations to the 2024 Batch's placed students! PLACEMENT OFFERS 915 854 71 41 45 33 165						
540 <sup>+</sup> UNIQUE PLACEMENTS	TOTAL STRENGTH ELICIBLE STUDENTS - BRANCH WISE UNIQU AIGDS-55   CSE - 138   IT - 133   ECE - 1		AVERAGE ABOVE SALARY 10 LPA - BRANCH WISE PLACEMENT O 5- 90   CSE - 239   IT - 204  ECE - 136   EEE -			
			)-2024			
No. of Companies Visited: <b>70</b>	Total	no. of Offers 818	Top 10 Comp Package			
AIDS Offers 90 Civil Offers 14	CSE Offers ECE Offer 239 136	EEE Offers 81	IT MBA Offers Offers 204 3	Mech. Offers 51		

# **Research & Development Activities**

# **Details of Patents**

Application Number	Applicant Name	Dept.	Date of Filing	Title Of Invention		
202205074	Ramesh Babu MallelaCSE25-01-2023A Counting Bloom FilterDr. P Kiran Sree, Dr. M PrasadCSE23-11-2023Paper Scanning Machine B on Internet of Things		A Counting Bloom Filter			
367333-001			Paper Scanning Machine Based on Internet of Things			
202241008733	Mr. Ch. Phaneendra Varma	CSE		Machine Learning Based Approach to Detect Anomalies In IOT Devices		

201941025873	Shri Vishnu Engineering College for Women	EEE	28-06-2019	Apparatus and Method for Single Motor Drive Testing for Electric Vehicle Under Different Simulated Road Conditions
202341038669	Dr. P Gireesh Kumar Mr. B Venkatesh Ms. M Surya Kumari Ms. P Lavanya Ms. Ch. Manjula Ms. V Manasa Mrs. A Tripura Ms. Ch. Harika Mr. Ramgopal L Mr. N HariPavan	CE	06-06-2023	Method of Constructing Steel Reinforced Concrete
390360-001	<ol> <li>Dr. Natchimuthu</li> <li>Dr. Pala Gireesh</li> <li>Kumar</li> <li>Dr. S Meenakshi</li> <li>Sudarvizhi 4. Jagadish</li> <li>Shrisalla Haranatti</li> <li>Prasoon P.P.</li> <li>R Saleema Begum</li> </ol>	CE	14-07-2023	Hand-Drill Auger for Concrete Floors
202341014287	Dr. G Durga Prasad	AI	03-03-2023	Smart Grids for localising abnormal Conditions detection system and method
202341021299	Dr. G Durga Prasad	AI	24-03-2023	Implementation of identification system using Multilevel Converters for active filters
202311062490	Dr. A. Sri Krishna	AI	17-09-2023	Personalized Recommendation Systems Enhanced by Natural Language Processing Capabilities
202311062490	<ol> <li>Pooja Sharma</li> <li>Dr. Purushotam Naidu k</li> <li>Dr. Lakshmana Rao Vadala</li> <li>Mr. Udaya Kumar Addanki</li> <li>S. Sumahasan</li> <li>Dr. P Krishna Subba Rao</li> <li>Dr. A. Sri Krishna</li> </ol>	AI	17-09-2023	Personalized Recommendation System Enhanced by Natural Language Processing Capabilities
20 2023 105 674.1	Ms. Padma Bellapukonda	IT		IoT Based Integrated Aquaculture Management System
0	Mr. P L V D Ravi Kumar	IT		Device for Modulation Techniques

202341006542	Javvadi Eswara Manikanta	ME	01-02-2023	Guided cutting tool
202341006542	Manikanta	ME	01-02-2023	Guided cutting tool

# Funded R & D Projects

S.No.	Sanction File No	Name of the Project	Name of the Staff	Dept	Total Amount Sanctioned in Lakhs
1	EE-9/2/2021- R&D-E	Memory-Optimized CoProcessing Unit for Enhanced Edge Al" to be implemented by Shri Vishnu Engineering College for Women, Bhimavaram under Chips to Startup (C2S) Programme.	Dr. K Padma Vsavi Dr. M V Ganeswara Rao Dr. M V Subbarao Mr. G Challa Ram	ECE	64,55,000
2	2 DST/SEED/C RRC/2022/202 2/92 Establishment of Community Resilience Resource Centre CRRC in Bhimavaram, Undi, Palakoderu, Attilli and Kalla Blocks, West Godavari District, Andhra Pradesh State.		PI: Dr S Hanumantha Rao Co-PI:Dr K Jagadish Dr K Ganesh	ECE,BS- Chemistry	1,24,88,182
3	1690953705/A ICTE/ATAL/2 023-2024	Design Thinking and Prototyping for Industry 4.0	Dr. Sudheer Kumar Terlapu Mr. B. Satya Krishna	ECE, AICTE- IDEA Lab	3,50,000
4	F. No. 1692110637/A ICTE/ATAL/2 023-24	Advancements in Nanoscale VLSI Design: Enabling Next-Generation Integrated Circuits"	Dr S Hanumantha Rao Mr G Challaram	ECE	3,50,000
5	F.NO. 1691386373/A ICTE/ATAL/2 023-24	Current Trends and Future Prospects: AI and Machine Learning Applications in Electrical Engineering	Dr. S.Dileep Kumar Varma & Dr M V Srikanth	EEE	3,50,000

## **Details of Publications**

### **Journals:**

- 1. Rao KS, Kumar BVN, Rajeev YN, Venkatarao K, Cole S. Structural, morphological and photoluminescence properties of Eu3+ doped Cd2Sr(PO4)2 nanopowder. J Mol Struct 2023;1284.
- Borra Spr, Rao Mvg, Kumar Pr, Pyla S, Sagar Kv, Devi Ag, Kodepogu Kr. Unhealthy Plant Region Detection In Plant Leaves Using Adaptive Genetic Algorithms. J Theor Appl Inf Technol 2023;101(8):3133-7.
- 3. Kumar BVN, Rajeev YN, Shaik EB, Venkatarao K, Rao KR, Cole S. Enhanced luminescence and energy transfer of Bi3+/Dy3+ co-doped La2Zr2O7 nanophosphors for pc-LED applications. Phys Chem Res 2023;11(1):23-31.
- 4. Devi AG, Borra SPR, Haritha T, Mandava VSR, Balaji T, Sagar KV, Kodepogu KR. An improved CHI2 feature selection based a two-stage prediction of comorbid cancer patient survivability. Rev Intell Artif 2023;37(1):83-92.
- Rao Vvrm, Silpa N, Mahesh G, Reddy Ss, Kumar V, Rao Kbvb. An Optimal Machine Learning Model Based On Selective Reinforced Markov Decision To Predict Web Browsing Patterns. J Theor Appl Inf Technol 2023;101(2):859-73.
- 6. Challa Ram G, Sambaiah P, Yuvaraj S, Kartikeyan MV. Tunable bandstop filter using spoof surface plasmon polaritons for terahertz applications. AEU Int J Electron Commun 2023;170.
- 7. Josphineleela R, Raja Rao PBV, shaikh A, Sudhakar K. A multi-stage faster RCNN-based iSPLInception for skin disease classification using novel optimization. J Digit Imaging 2023.
- 8. Subbarao MV, Ram GC, Varma DR, Kumar DG, Kumar MP. Automatic fault detection in industrial smart grids using KNN and ensemble classifiers. El-Cezeri J Sci and Eng 2023;10(2):240-52.
- 9. Kumar PR, Swamy BYVNR, Prasad BSH, Krishna KR, Babu AN, Brahmanandam PS. Polyimide-based flexible antenna for telemedicine and wireless applications. Recent Adv Electr Electron Eng 2023;16(4):426-35.
- 10. Dhandapani L, Shinde SB, Wadhwa L, Hariramakrishnan P, Padmaja SM, Devi Gurusamy M, Venkatarao MK, Razia S. A deep learning-based approach to optimize power systems with hybrid renewable energy sources. Electr Power Comp Syst 2023.
- 11. Naveen Kumar G, Naga Durga Rao G, Durga Prasad J, Avinash kumar K, Eswara Manikanta J. Hybrid polymer nano fillers on mechanical properties for current applications: An overview. Mater Today Proc 2023.
- 12. Battina NM, Chirala HK, Vanthala VSP, Javvadi EM, Nukathoti RS, Mohammed A. Experimental and finite element investigations on formability of friction stir welded tailor welded blanks of AA6061 and AA2017. Mater Today Proc 2023.
- 13. Reddy SS, Gadiraju M, Preethi NM, Rao VVRM. A novel approach for prediction of gestational diabetes based on clinical signs and risk factors. Endor Trans Scalable Inf Syst 2023;10(3).
- 14. Varma DR, Murali M, Krishna MV. Compact, robust and low-profile textile antennas for biomedical applications with upgraded bandwidth for integration of easy garment. Mater Today Proc 2023;80:1548-55.
- 15. Ramesh Varma D, Durga Saranya B, Pavani G, Venkata Subbarao M, Challa Ram G, Girish Kumar D. Design of fabric antennas for body protective garment applications and analysis on their performance. Mater Today Proc 2023;80:1538-47.
- 16. Sree, Pokkuluri Kiran ; Rao, G. Srinivasa ; Raju, P. Srinivasa Crowd Counting And Anomaly Detection From Cctv Footages Using Deep Learning Augmented With Cellular Automata, Journal Of Theoretical And Applied Information Technology , Volume 101, Issue 13, Pages 5275 - 5278 , 15 July 2023
- 17. Brahmanandam, P.S.; Uma, G.; Tarakeswara Rao, K.; Sreedevi, S.; S. M. P. Latha Devi, N.; Chu, Y.-H.; Das, J.; Mahesh Babu, K.; Narendra Babu, A.; Das, S.K.; et al. Doppler Sodar

Measured Winds and Sea Breeze Intrusions over Gadanki (13.5° N, 79.2° E), India. Sustainability 2023, 15, 12167. https://doi.org/10.3390/su151612167

- N. Jajam, N. P. Challa, K. S. L. Prasanna and C. H. V. S. Deepthi, "Arithmetic Optimization With Ensemble Deep Learning SBLSTM-RNN-IGSA Model for Customer Churn Prediction," in IEEE Access, vol. 11, pp. 93111-93128, 2023, doi: 10.1109/ACCESS.2023.3304669.
- Anil, K., Sivaprakasam, S. & Sridhar, P. Soil Loss Evaluation in Kaddam Watershed Using Geographical Information Systems and Remote Sensing Techniques. J. Inst. Eng. India Ser. A (2023). https://doi.org/10.1007/s40030-023-00753-6
- 20. "Balaji, T., Kumar, P.R. Rao, M.V.G., Appari, G.D., Creating The Best Directed Random Testing Method To Minimize Interactive Faultsempirical Perspective
- 21. Journal of Theoretical and Applied Information Technologythis link is disabled, 2023, 101(7), pp. 2540–2546"
- 22. Ram, G.C., Sambaiah, P., Yuvaraj, S., Kartikeyan, M.V., Graphene based filter design using triangular patch resonator for THz applications (2023) Nano Communication Networks , 38, art. no. 100477, 2-s2.0-85173180595
- Nagendra Panini Challa, C. Shanmuganathan, M. Shobana, Ch. Venkata Sasi Deepthi and N. Bharathiraja, Deep learning based on multimedia encoding to enhance video quality, International Journal of Communication Networks and Distributed SystemsVol. 29, No. 5, https://doi.org/10.1504/IJCNDS.2023.133160
- 24. Bhiksha Gugulothu, Rajasekaran Saminathan, A. Pradeep, Ankit Sharma, S. Vijayakumar, Prabhu Paramasivam & N. Srinivasa Rao (2023) Investigating the strength of butt-welded joints of AA6082 and AA5052 alloys through friction stir welding; the impact of tool tilt angle and feed rate, Journal of Adhesion Science and Technology, DOI: 10.1080/01694243.2023.2253631
- 25. Jagannath E. Nalavade, Chandra Sekhar Kolli, Sanjay Nakharu Prasad Kumar, Deep embedded clustering with matrix factorization based user rating prediction for collaborative recommendation, Multiagent and Grid SystemsVolume 19Issue 22023pp 169– 185https://doi.org/10.3233/MGS-230039
- 26. Obula Reddy Kummitha, Siva Krishna Reddy Dwarshala, Karthik Chary, Venu Mangam, Harikrishna Chirala & Naga Malleswararao Battina (2023) Effect of Vortex Generator Placement and Nanofluids on Channel Flow Heat Transfer, Heat Transfer Engineering, DOI: 10.1080/01457632.2023.2268865
- 27. "Mangalampalli, S., Karri, G.R., Pokkuluri, K.S., RajKumar, K.V., Satish, G.N. SLA based Workflow Scheduling algorithm in Cloud Computing using Haris Hawks optimization (2023) EAI Endorsed Transactions on Scalable Information Systems , 10 (6), . 2-s2.0-8Rao, M.V.G., Ramanjaneyulu, N., Pydi, B. et al. Enhancing Performance of Dual-Gate FinFET with High-K Gate Dielectric Materials in 5 nm Technology: A Simulation Study. Trans. Electr. Electron. Mater. 24, 557–569 (2023). https://doi.org/10.1007/s42341-023-00473-55173603733"
- Rao, M.V.G., Ramanjaneyulu, N., Pydi, B. et al. Enhancing Performance of Dual-Gate FinFET with High-K Gate Dielectric Materials in 5 nm Technology: A Simulation Study. Trans. Electr. Electron. Mater. 24, 557–569 (2023). https://doi.org/10.1007/s42341-023-00473-5
- 29. P.J.R. Shalem Raju, K.V.D. Kiran and Pokkuluri Kiran Sree, Digital image watermarking based on hybrid FRT-HD-DWT domain and flamingo search optimisation, October 11, 2023pp 573-598https://doi.org/10.1504/IJCVR.2023.134319
- "Gatla, R.K., Ramesh, M., Rao, K.P., Shashavali, P., Garapati, D.P., Babu, P.C., Kumar, D.G. Effect of Junction Temperature on System Level Reliability of Grid Connected PV Inverter (2023) Journal of New Materials for Electrochemical Systems, 26 (4), pp. 248-256."
- "Rafi, N., Vasu Babu, R., Srinivasa Rao, R.V.N., Monikarchana, Y., Nagaiah, T.On Fuzzy Closure Filters Of Decomposable Stone Almost Distributivelattices (2023) Asia Pacific Journal Of Mathematics, 10, Art. No. 40,"

- 32. Jagadeesh, K., Kadiyala, K.G., Varma Dendukuri, B.N.S., Guttula, R.S., Gupta Tiruveedhi, V.L.N.B., Vamsi, P., Chavakula, R.L. Quality Control Assessment Of Dutasteride And Silodosin In Capsules And Tablets Employing A Novel Developed Hplc Technique; Evaluation Of Stabilities Of Dutasteride And Silodosin In Accelerated Degradation, (2023) International Journal Of Applied Pharmaceutics, 15 (6), Pp. 98-107.
- 33. "Rajesh Cheruku, Jae Hong Kim, V.B Murali Krishna, P. Periyat, Sarathbabu Duvvuri SSSR,Photo-electrodes decorated with carbon quantum dots: Efficient dye-sensitized solar cells, Results in Engineering, Volume 20, 2023, 101611, ISSN 2590-1230, https://doi.org/10.1016/j.rineng.2023.101611."
  - Yedlapalli, P.; Kishore, G.N.V.; Boulila, W.; Koubaa, A.; Mlaiki, N. Toward Enhanced Geological Analysis: A Novel Approach Based on Transmuted Semicircular Distribution. Symmetry 2023, 15, 2030. https://doi.org/10.3390/sym15112030
  - 35. Shaik Nagulu, T A Rameshkumar & Jonnala Rohith Balaji (2023) Hybrid Naïve Back Propagation Based iCOSφ Algorithm for Enriching the Grid Performance with Photovoltaics/Battery/Ultracapacitor/Fuel Cell, Electric Power Components and Systems, DOI: 10.1080/15325008.2023.2282173
  - 36. "Sunil Pattem; Ramachandra Rao Kurada; Y. Ramu, ""Intelligent animal tracking system using internet of things and machine learning scheme "", AIP Conf. Proc. 2587, 020001 (2023)https://doi.org/10.1063/5.0150852"
  - 37. Mr.K.Phani Rama Krishna, Duvvuri Eswara Chaitanya Dr.M.Prema Kumar, Venkata Bhujanga Rao Madamanchi, Balaji. Tata, Kurra Upendra Chowdary, "Detection Of Casing Laceration Using Dense Cnn", Journal Of Theoretical And Applied Information Technology, 31st Decmeber 2023 -- Vol. 101. No. 24—2023
  - 38. Dr.Suresh Kumar Pittala, Dr. Kongara Srinivasa Rao, Balaji.Tata, P.Ravi Kumar, N.Jaya, Dr Y Anuradha, Kurra Upendra Chowdary, "An Ensemble Approach For Harvest Vintage Forecast With Machine Learning Techniques: An Experimental Study", Journal Of Theoretical And Applied Information Technology, 31st December 2023. Vol.101. No 24
  - "Tirumalasetty, M.L., Vuppuloori, R.S.R., Tata, B., Maddipati, V.G.R., Navaneethan, J., Kurra, U.C., Kodepogu, K.R., Gaddala, L.K., Yalamanchil, S. (2023). Systematic survey on chronic kidney disease prediction using different machine learning techniques. Revue d'Intelligence Artificielle, vol. 37, no. 6, pp. 1645-1650. https://doi.org/10.18280/ria.370629
  - 40. "Sathwik AS, Naseeba B, Kiran JC, Lokesh K, Deepthi Ch VS, Challa NP. Early Detection of Monkeypox Skin Disease Using Patch Based DL Model and Transfer Learning Techniques. EAI Endorsed Trans Perv Health Tech [Internet]. 2023 Nov. 6 [cited 2024 Feb. 3];9
  - 41. "Nekkanti Haripavan ,Subhashish Dey, ""Application of remote sensing and geographic information system in solid waste management for Gudivada Municipality, Andhra Pradesh, India"", Waste Management BulletinVolume 1, Issue 3, December 2023, Pages 128-140, https://doi.org/10.1016/j.wmb.2023.08.006"

### **Conferences:**

- 1. V. S. Bhagavan; P. L. Rama Kameswari; Tadikonda Srinivasulu, Certain classical properties for generalized hypergeometric polynomials. AIP conference proceedings; 2023.
- 2. Sricharani Poranki; Srinivasa Rao Boyapati, Estimation of reliability in multi component stress strength based on dagum distribution. AIP conference proceedings; 2023.
- 3. Narasimharaju Manthena; Raju Gottumukkala, IoT based smart class room monitoring system using convolutional neural network algorithm. AIP conference proceedings; 2023.
- 4. "Durga Prasad Garapati; V. Jahnavi Tayaru; D. Harsha Sree; P. Yasasvini; V. Sireesha, Absolute sinewave based modulation technique for reduced switch multilevel inverter for better total harmonic distortion. 2nd IEEE international conference on distributed computing and electrical circuits and electronics, ICDCECE 2023; 2023.

- 5. K. Padma Vasavi, G. Srinivasa Rao, S. Hanumantha Rao, M. PremaKumar & P. Ravi Kumar ,Performance evaluation of deep learning architectures for recognition of moisture in dried coconut copra. Springer proceedings in mathematics and statistics; 2023. 387 p.
- Shaik Suhail Ahmed; Padma Jyothi Uppalapati; Shaik Ayesha; S Mahaboob Hussain, N Silpa, Assessing public sentiment towards digital india through twitter sentiment analysis: A comparative study. Proceedings of the 7th international conference on intelligent computing and control systems, ICICCS 2023; 2023. 955 p.
- 7. N Silpa; V V R Maheswara Rao; M. Venkata Subbarao; Ramachandra Rao Kurada, An enriched employee retention analysis system with a combination strategy of feature selection and machine learning techniques. Proceedings of the 7th international conference on intelligent computing and control systems, ICICCS 2023; 2023. 142 p.
- Sarath Babu Duvvuri, Stator inter-turn short-circuit fault in 3-Φ induction motors: A critical observations. 2023 19th international scientific technical conference alternating current electric drives, ACED 2023 - proceedings; 2023.
- Sarath Duvvuri Broken rotor bar fault in 3-Φ squirrel-cage induction motors: A critical observations. 2023 international conference on power, instrumentation, control and computing, PICC 2023; 2023.
- D. Girish Kumar; Christeena Joseph; M. Venkata Subbarao, Pansharpening of multispectral images using deep learning architectures: Trends & future directions. Proceedings of the 2nd international conference on applied artificial intelligence and computing, ICAAIC 2023; 2023. 411 p.
- 11. Narendra Babu A, Brahmanandam PS, Uma G, Pushpa K, Srinivas K, Praneetha A. Tropospheric zenith delay (TZD) for microwaves during severe weather events over a few indian stations. Lect Notes Electr Eng 2023;992 LNEE:165-72.
- 12. Venkata Subbarao M, Keerthana B, Ramesh Varma D, Terlapu SK, Challa Ram G. Automatic modulation classification under AWGN and fading channels using convolutional neural network. Lect Notes Electr Eng 2023;992 LNEE:215-25.
- 13. Chakravarthy VVSSS, Bhateja V, Fuentes WF, Anguera J, Vasavi KP. Preface. Lect Notes Electr Eng 2023;992 LNEE:xi-xii.
- 14. D. Ramesh Varma; M. Murali; M. Vamshi Krishna; G S N Raju, Miniaturized novel textile antenna for biomedical application. 2023 2nd international conference on paradigm shifts in communications embedded systems, machine learning and signal processing, PCEMS 2023.
- 15. K.Soni SharmilaS Thanga RevathiKiran Sree PokkuluriKiran Sree Pokkuluri, Convolution neural networks based lungs disease detection and severity classification. 2023 international conference on computer communication and informatics, ICCCI 2023; 2023.
- G. Challa Ram; M. Venkata Subbarao; D. Ramesh Varma; A. Sri Krishna, Enhanced deep convolutional neural network for identifying and classification of silicon wafer faults in IC fabrication industries. WiSPNET 2023 - international conference on wireless communications, signal processing and networking; 2023.
- Viswanadham Ravuri; M.V. Subbarao; T.Sudheer Kumar; T.S. Kavitha; D.Ram Sandeep,Multi-cancer early detection and classification using machine learning based approaches. 2023 3rd international conference on advances in electrical, computing, communication and sustainable technologies, ICAECT 2023; 2023.
- Tella Pavani Varma; Sannajaji Naraganeni; K Ramesh Chandra; K Pasipalana Rao,Performance evaluation of MIMO system with different receiver structures. 2023 9th international conference on advanced computing and communication systems, ICACCS 2023; 2023. 829 p.

- Nagendra Panini Challa; Shyam Mohan J S; Venkata Sasi Deepthi; Sivaram Rajeyyagari, Smart irrigation system using internet of things. Proceedings of the 17th INDIACom; 2023 10th international conference on computing for sustainable global development, INDIACom 2023; 2023. 990 p.
- 20. M V Subbarao, G Challa Ram, D Ramesh Varma Performance analysis of pistachio species classification using support vector machine and ensemble classifiers. ICRTEC 2023 proceedings: IEEE international conference on recent trends in electronics and communication: Upcoming technologies for smart systems; 2023.
- 21. M. Venkata Subbarao; J T S Sindhu; Y. C. A. Padmanabha Reddy; Viswanadham Ravuri,Performance analysis of feature selection algorithms in the classification of dry beans using KNN and neural networks. 2nd international conference on sustainable computing and data communication systems, ICSCDS 2023 proceedings; 2023. 539 p.
- 22. G.R.L.V.N. Srinivasa Raju; Thota Nirmal Nikitha; G. Challa Ram; Area optimised efficient multiplication using modified round square approximation. 2023 IEEE international conference on integrated circuits and communication systems, ICICACS 2023; 2023.
- 23. Prasad Maddula; P Srikanth; P. Kiran Sree; P. B V Raja Rao; P. T Satyanarayana Murty,COVID-19 prediction with chest X-ray images using CNN. Proceedings of the international conference on intelligent and innovative technologies in computing, electrical and electronics, ICIITCEE 2023; 2023. 568 p.
- 24. Maheswara Rao V V R; Silpa N; Mahesh Gadiraju; Shiva Shankar Reddy; Sridevi Bonthu, Ramachandra Rao Kurada, A plausible RNN-LSTM based profession recommendation system by predicting human personality types on social media forums. Proceedings - 7th international conference on computing methodologies and communication, ICCMC 2023; 2023. 850 p.
- 25. Snehit Vaddi; Vishnu Vipul Maddi; Yoga Sai Krishna Ramineni; Lalitha Sri Chalamalasetti, An effective model for smartphone based pothole classification and admin alerting system. 2023 international conference on artificial intelligence and smart communication, AISC 2023; 2023. 925 p..
- 26. M. Venkata Subbarao; J T S Sindhu; N N S Harshitha; K. Padma Vasavi; A. Sri Krishna, Detection of retinal degeneration via high-resolution fundus images using deep neural networks. Proceedings of the 2023 2nd international conference on electronics and renewable systems, ICEARS 2023; 2023. 955 p.
- D.N.S.B. Kavitha; M. Venkata Subbarao, Performance analysis of sentiment classification using optimized kernel extreme learning machine. Proceedings of 2023 international conference on intelligent systems, advanced computing and communication, ISACC 2023; 2023.
- 28. K Nattar Karman; V. Velmurugan; Kommisetti Murthy Raju; T. Sajana; V. Vijayalakshmi,Cost-effective communication in UDN in indoor and outdoor environment via machine learning. Proceedings of the international conference on artificial intelligence and knowledge discovery in concurrent engineering, ICECONF 2023; 2023.
- 29. Sharmila KS, Asha AVS, Archana P, Chandra KR. Single image dehazing through feed forward artificial neural network. Lect Notes Inst Comput Sci Soc Informatics Telecommun Eng 2023;472 LNICST:115-24.
- 30. D. Ramesh Varma; M. Venkata Subbarao; G. Challa Ram; D. Girish Kumar, Reducing interference and antenna array thinning using nature inspired genetic algorithm. Proceedings of the 3rd international conference on artificial intelligence and smart energy, ICAIS 2023; 2023. 915 p.

- 31. Hema Susmitha Panuganti; Afreena Shaik; S M Padmaja; Greeshma Sri Thota,Design and implementation of a voice controlled chessboard using an X-Y mechanism. 2023 IEEE international students' conference on electrical, electronics and computer science, SCEECS 2023; 2023.
- 32. S Veerababu; R Francis; V Srinivasarao, Taxonomy on DSP based islanding detection techniques in micro grid. Proceedings 5th international conference on smart systems and inventive technology, ICSSIT 2023; 2023. 103 p.
- 33. G. Challa Ram; M. Venkata Subbarao; D. Ramesh Varma; M. Prema Kumar, Delay enhancement of wallace tree multiplier with binary to excess-1 converter. Proceedings - 5th international conference on smart systems and inventive technology, ICSSIT 2023; 2023. 113 p.
- Ravuri V, Venkata Subbarao M, Terlapu SK, Sairam Vamsi T. Performance analysis of 5G micro-cell coverage with 3D ray tracing. Lect Notes Networks Syst 2023;493:393-401.
- 35. Padma Vasavi K. Real-time accident detection and intimation system using deep neural networks. Lect Notes Networks Syst 2023;494:197-205.
- 36. Vadrevu PK, Veeramanickam MRM, Adusumalli SK, Bunga SK. Sign language recognition for needy people using machine learning model. Smart Innov Syst Technol 2023;315:227-33.
- Tej Varma G, Adusumalli SK. Shrimp surfacing recognition system in the pond using deep computer vision. Smart Innov Syst Technol 2023;315:217-26.
- 38. Anil K, Sivaprakasam S, Sridhar P. Prioritization of watersheds using GIS and fuzzy analytical hierarchy (FAHP) method. Smart Innov Syst Technol 2023;315:149-57.
- 39. Challa NP, Shyam Mohan JS, Naga Badra Kali M, Venkata Rama Raju P. Intelligent disease analysis using machine learning. Smart Innov Syst Technol 2023;315:119-26.
- 40. Revathy, G, Sree, P.K., Devi, S.S., Karunamoorthi, R., Vadivu, S.S., Visual Learning with Dynamic Recall, Smart Innovation, Systems and Technologies, 2023, 313, pp. 119–126
- 41. Satyanarayana Murty,P.T., Prasad, M., Raja Rao,P.B.V., Kiran Sree, P.,Ramesh Babu,G., Phaneendra Varma, C.A Hybrid IntelligentCryptography Algorithm forDistributed Big Data Storage inCloud Computing Security, Lecture Notes in ComputerScience (including subseriesLecture Notes in ArtificialIntelligence and Lecture Notes inBioinformatics), 14078,pp. 637-548
- 42. "Kurada, R.R., Pattem, S., Ramu, Y., Maheswara Rao, V.V.R., Silpa, N., Bonthu, S.Raitu Vrudhi An Android based Mobile Application for Agro-Marketing(2023) 2023 4th International Conference for Emerging Technology, INCET 2023, DOI: 10.1109/INCET57972.2023.10170078"
- 43. M. V. Subbarao, U. L. S. Rani, J. T. S. Sindhu, G. P. Kumar, V. Ravuri and S. N, "A Comprehensive Study of Machine Learning Algorithms for Date Fruit Genotype Classification," 2023 International Conference on Applied Intelligence and Sustainable Computing (ICAISC), Dharwad, India, 2023, pp. 1-7, doi: 10.1109/ICAISC58445.2023.10199785.
- M. V. Subbarao, U. L. S. Rani, V. H. Mythreya, G. P. Kumar, R. Priyakanth and U. S. Abudhagir, "Investigations on Feature Ranking Algorithms for Date Fruit Genotype Detection," 2023 8th International Conference on Communication and Electronics Systems (ICCES), Coimbatore, India,2023, pp. 1506-1513, doi: 10.1109/ICCES57224.2023.10192766.
- 45. M. Rao V V R, M. K, S. N, V. S. S. P. R. Gottumukkala, N. R. M and N. Pamarthi, "An Innovative Machine Learning based Heart Disease Assessment System by Sequential Feature Selection Approach," 2023 3rd International Conference on Intelligent Technologies (CONIT), Hubli, India, 2023, pp. 1-7, doi: 10.1109/CONIT59222.2023.10205817.

- 46. Mamillapalli Chilaka Rao, Praveen Kumar Karri, A. Nageswara Rao & P. Suneetha, Automating Fish Detection and Species Classification in Underwaters Using Deep Learning Model, International Conference on Information and Management Engineering, ICCIC 2022: Proceedings of the 2nd International Conference on Cognitive and Intelligent Computing pp 371–382
- 47. Kadali, D.K., Venkata Naga Raju, D., Venkata Rama Raju, P. (2023). Cluster Query Optimization Technique Using Blockchain. In: Kumar, A., Ghinea, G., Merugu, S. (eds) Proceedings of the 2nd International Conference on Cognitive and Intelligent Computing. ICCIC 2022. Cognitive Science and Technology. Springer, Singapore. https://doi.org/10.1007/978-981-99-2742-5\_65
- 48. Mamillapalli Chilaka Rao, P. Sreedhar, M. Bhanurangarao & G. Sujatha, Automatic Multiple-Choice Question and Answer (MCQA) Generation Using Deep Learning Model, Proceedings of the 2nd International Conference on Cognitive and Intelligent Computing, Cognitive Science and Technology book series (CSAT), https://doi.org/10.1007/978-981-99-2746-3\_1
- Raja Rao, P.B.V., Prasad, M., Kiran Sree, P., Venkata Ramana, C., Satyanarayana Murty, P.T. (2023). Enhancing the MANET AODV Forecast of a Broken Link with LBP. In: Reddy, V.S., Prasad, V.K., Wang, J., Rao Dasari, N.M. (eds) Intelligent Systems and Sustainable Computing. ICISSC 2022. Smart Innovation, Systems and Technologies, vol 363. Springer, Singapore. https://doi.org/10.1007/978-981-99-4717-1\_6
- Pradeep, M., Chintamaneni, V., Anantha Raman, G.R., Srividya, A., Fathima, S.S.S., Rajeswaran, N. (2023). AI-Based Smart Farming Technology Using IoT. Intelligent Systems and Sustainable Computing. ICISSC 2022. Smart Innovation, Systems and Technologies, vol 363. Springer, Singapore. https://doi.org/10.1007/978-981-99-4717-1 20
- 51. Basi Reddy, A., Harichandana, B., Misra, S., Nagendra, K.V., Anandaraj, S., Introduction of Virtual Environment with Learning Personalized Content Recommendation for Realistic Avatar Creation inOnline Platform using Machine Learning, (2023), Proceedings of the 2023 2nd International Conference on Augmented Intelligence and Sustainable Systems, ICAISS2023, pp. 540-545., 2-s2.0-85173617186
- 52. C. S. Kolli, S. Faiz Ahamed, G. A. K. S. R. Kumar, S. K. Maddila, Y. Komali and S. Rao Bheesetty, "Underwater Image Quality Enhancement using Multiscale Image Fusion," 2023 Second International Conference on Augmented Intelligence and Sustainable Systems (ICAISS), Trichy, India, 2023, pp. 1064-1070, doi: 10.1109/ICAISS58487.2023.10250695.
- 53. R. R. Kurada, K. Pavan Kanadam, Y. Ramu, N. Silpa, V. V. R. M. Rao and S. Pattem, "Story Telling with Basic and Advanced Data Visualizations of Blockchain Technologies," 2023 Second International Conference on Augmented Intelligence and Sustainable Systems (ICAISS), Trichy, India, 2023, pp. 1254-1259, doi: 10.1109/ICAISS58487.2023.10250661.
- 54. Chintalapati, P.V., Babu, G.R., Sree, P.K., Kode, S.K., Kumar, G.S. (2023). Usage of AI Techniques for Cyberthreat Security System in Android Mobile Devices. In: Hassanien, A.E., Castillo, O., Anand, S., Jaiswal, A. (eds) International Conference on Innovative Computing and Communications. ICICC 2023. Lecture Notes in Networks and Systems, vol 703. Springer, Singapore. https://doi.org/10.1007/978-981-99-3315-0\_33
- 55. S. N, M. R. V. V. R, M. V. Subbarao, M. Pradeep, C. R. Grandhi and A. Karunasri, "A Robust Team Building Recommendation System by Leveraging Personality Traits Through MBTI and Deep Learning Frameworks," 2023 International Conference on IoT, Communication and Automation Technology (ICICAT), Gorakhpur, India, 2023, pp. 1-6, doi: 10.1109/ICICAT57735.2023.10263718.

- 56. V. Khullar, V. M. R.M, S. Muthukumarasamy, C. Prabha, H. Pal Singh and V. Pavankumar, "Hybrid of DNN Feature Extraction and Ensemble Classification for Identification of Esophagitis and Barretts in Upper Gastrointestinal Tract Images," 2023 International Conference on Computer, Electronics & Electrical Engineering & their Applications (IC2E3), Srinagar Garhwal, India, 2023, pp. 1-7, doi: 10.1109/IC2E357697.2023.10262774.
- 57. G. R. Babu, P. Varma Chintalapati, P. K. Sree, A. Pudi and C. V. Ramana, "A Context Sensitive with Effective Task Migration in Mobile Cloud Computing Services," 2023 3rd International Conference on Computing and Information Technology (ICCIT), Tabuk, Saudi Arabia, 2023, pp. 201-205, doi: 10.1109/ICCIT58132.2023.10273949.
- 58. P. K. Sree, G. R. Babu, S. U. D. N, P. B. V. R. Rao, P. V. Chintalapati and M. Prasad, "Fake News Detection using Cellular Automata Based Deep Learning," 2023 3rd International Conference on Computing and Information Technology (ICCIT), Tabuk, Saudi Arabia, 2023, pp. 167-171, doi: 10.1109/ICCIT58132.2023.10273875.
- P. K. Sree, P. V. Chintalapati, S. U. D. N, M. Prasad, G. R. Babu and P. B. V. Raja Rao, "Waste Management Detection Using Deep Learning," 2023 3rd International Conference on Computing and Information Technology (ICCIT), Tabuk, Saudi Arabia, 2023, pp. 50-54, doi: 10.1109/ICCIT58132.2023.10273898.
- P. K. Nalli, M. V. Subbarao, D. P. Garapati, S. K P, R. Priyakanth and G. P. Kumar, "Performance Analysis of Pre-Trained Deep Learning Architectures for Classification of Corn Leaf Diseases," 2023 International Conference on Network, Multimedia and Information Technology (NMITCON), Bengaluru, India, 2023, pp. 1-8, doi: 10.1109/NMITCON58196.2023.10275915.
- S. K. A, S. Kesavan, J. J, A. K. K. S and P. Maddula, "Voice Enabled Deep Learning Based Image Captioning Solution for Guided Navigation," 2023 International Conference on Network, Multimedia and Information Technology (NMITCON), Bengaluru, India, 2023, pp. 1-6, doi: 10.1109/NMITCON58196.2023.10276134.
- 62. M. K. Ch, M. S. K. Munaga, C. S. Kolli and S. K. Maddila, "Real-Time Water Quality Tracking and Alert System with IoT Integration," 2023 3rd International Conference on Pervasive Computing and Social Networking (ICPCSN), Salem, India, 2023, pp. 1013-1018, doi: 10.1109/ICPCSN58827.2023.00172.
- 63. K. S. Sharmila, T. R. S and P. Kiran Sree, "Drug-Drug Interaction: An Improved Prediction Approach Based on Convolutional Neural Networks," 2023 International Conference on Sustainable Communication Networks and Application (ICSCNA), Theni, India, 2023, pp. 1712-1715, doi: 10.1109/ICSCNA58489.2023.10370722.
- 64. M. D. M S, M. R, F. Ravindaran and K. MurthyRaju, "A Machine Learning Approach for the Underwater Investigation of Malicious Activity in a Wireless Sensor Network," 2023 International Conference on Sustainable Communication Networks and Application (ICSCNA), Theni, India, 2023, pp. 128-132, doi: 10.1109/ICSCNA58489.2023.10370730..
- 65. R. Sahoo and G. R. L. V. N. Srinivasa Raju, "Dual-band Microstrip Fork Shaped Terahertz Antenna for Short Range Wireless Application," 2023 4th IEEE Global Conference for Advancement in Technology (GCAT), Bangalore, India, 2023, pp. 1-4, doi: 10.1109/GCAT59970.2023.10353238.
- 66. Kumar, P.G., Lekhana, P., Tejaswi, M. (2023). Impacts of CO and Air Quality-Related Emissions on the Urban Environment—A Case Study (Bhimavaram, India). In: Kallel, A., et al. Selected Studies in Environmental Geosciences and Hydrogeosciences. CAJG 2020. Advances in Science, Technology & Innovation. Springer, Cham. https://doi.org/10.1007/978-3-031-43803-5\_26

- N. Pamarthi, P. T. Satyanarayana Murty, A. S. Mallesh, P. K. Sree, S. R. Dangeti and B. Maram, "A Research Study of Heart Health Monitoring Using Deep Learning and IoT," 2023 1st DMIHER International Conference on Artificial Intelligence in Education and Industry 4.0 (IDICAIEI), Wardha, India, 2023, pp. 1-6, doi: 10.1109/IDICAIEI58380.2023.10406326.
- 68. A. S. Mallesh, N. Pamarthi, P. T. S. Murty, P. K. Sree, T. Daniya and B. Maram, "Smart System for Early Detection of Agricultural Plant Diseases in the Vegetation Period," 2023 1st DMIHER International Conference on Artificial Intelligence in Education and Industry 4.0 (IDICAIEI), Wardha, India, 2023, pp. 1-6, doi: 10.1109/IDICAIEI58380.2023.10406672.
- R. Dhulipudi, S. R. Dangeti, V. Pynam, T. Daniya, P. Das and B. Maram, "A Framework for Smart & Secure Vehicle Intelligent Life Monitoring System," 2023 1st DMIHER International Conference on Artificial Intelligence in Education and Industry 4.0 (IDICAIEI), Wardha, India, 2023, pp. 1-6, doi: 10.1109/IDICAIEI58380.2023.10406405.
- 70. D. D. Prasad, K. V. S. Rami Reddy, P. R. Kumar, B. V. V Satyanarayana, A. M. V. Pathi and G. P. Kumar, "Feeding Pets using Automation Technology and Google Assistant," 2023 7th International Conference on Electronics, Communication and Aerospace Technology (ICECA), Coimbatore, India, 2023, pp. 224-229, doi: 10.1109/ICECA58529.2023.10395544.
- 71. C. Anitha, V. Srinivas Rao, R. R, M. R, S. Debroy and M. R, "Segmentation and Classification of Gastric Cancer from Endoscopic Image Dataset with the Aid of Artificial Intelligence," 2023 7th International Conference on Electronics, Communication and Aerospace Technology (ICECA), Coimbatore, India, 2023, pp. 212-218, doi: 10.1109/ICECA58529.2023.10394686.
- 72. N. Silpa, V. Vaishalini, S. V. S. S. Lakshmi, M. R. V V R, R. R. Kurada and S. Bonthu, "Empowering Diabetic Prediction through MRMR-Driven Feature Selection and Robustness of Ensemble Machine Learning," 2023 International Conference on Integrated Intelligence and Communication Systems (ICIICS), Kalaburagi, India, 2023, pp. 1-7, doi: 10.1109/ICIICS59993.2023.10421410.
- L. K. Dangeti, G. Chilakalapudi and A. Kumar, "An improved Hybrid switched inductor and switched capacitor based DC-DC Converter to reduce the voltage stress across the switch," 2023 IEEE Silchar Subsection Conference (SILCON), Silchar, India, 2023, pp. 1-5, doi: 10.1109/SILCON59133.2023.10404832.
- 74. M. L. V. A. Priya and M. V. Subbarao, "Performance Analysis of Machine Learning Techniques for Multi-Organ Cancer Detection and Classification: A Comparative Study," 2023 International Conference on Emerging Research in Computational Science (ICERCS), Coimbatore, India, 2023, pp. 1-7, doi: 10.1109/ICERCS57948.2023.10434014.
- 75. S. K. P, S. S. Duvvuri, S. D. K. Varma, D. P. Garapati, O. Koduri and V. S. N. NarasimhaRaju, "Ultra-Gain DC-DC Converter fed 3-Φ Inverter for Variable-Speed Drive Applications," 2023 IEEE 3rd International Conference on Smart Technologies for Power, Energy and Control (STPEC), Bhubaneswar, India, 2023, pp. 1-6, doi: 10.1109/STPEC59253.2023.10431328.
- 76. K. P. Swaroop, S. S. Duvvuri, S. D. K. Varma, D. P. Garapati, O. Koduri and V. S. N. NarasimhaRaju, "Polyphase DC-DC Boost Converter fed 3-Φ Inverter for Induction Motor Drives," 2023 IEEE 3rd International Conference on Smart Technologies for Power, Energy and Control (STPEC), Bhubaneswar, India, 2023, pp. 1-6, doi: 10.1109/STPEC59253.2023.10431175
- 77. P. Prabakaran, L. Chandra Sekhar Reddy, L. Ravikumar and M. K. Verma, "Simulate the Machine Learning Algorithm to Organize the CRAHN Network System," 2023 3rd International Conference on Advancement in Electronics & Communication Engineering

(AECE), GHAZIABAD, India, 2023, pp. 613-617, doi: 10.1109/AECE59614.2023.10428284.

- 78. V. G. R. Maddipati, B. Soudha Basheera Bhanu, D. Bhavya Sai, G. Navya Sri Mahitha, G. Pravallika and G. Maddipati, "High Performance VLSI Architecture for Real-Time Video Edge Detection," 2023 Second International Conference on Advances in Computational Intelligence and Communication (ICACIC), Puducherry, India, 2023, pp. 1-6, doi: 10.1109/ICACIC59454.2023.10435054.
- 79. G. C. Ram, S. Yuvaraj, M. V. Subbarao and P. S. Sneha, "CSRR Integrated Microwave Sensor for Analyte Dielectric Sensing," 2023 3rd International Conference on Mobile Networks and Wireless Communications (ICMNWC), Tumkur, India, 2023, pp. 1-5, doi: 10.1109/ICMNWC60182.2023.10435882.
- G. Ramesh Babu, P. V. Chintalapati, T. Majji, S. S. Likhitha Hasini, M. HemaSri and M. L. Prasanthi, "A Design of an Integrated Intrusion Detection System on Cloud Using DNN," 2023 International Conference on Advanced Computing & Communication Technologies (ICACCTech), Banur, India, 2023, pp. 72-80, doi: 10.1109/ICACCTech61146.2023.00021.
- 81. P. Raju, P. V. Chintalapati, G. R. Babu, P. L. Ravi Kumar, M. Sirigineedi and K. S. Kumar, "Dynamic Load Balancing Framework for Context Sensitive Offloading Scheme in Mobile Cloud Computing," 2023 International Conference on Advanced Computing & Communication Technologies (ICACCTech), Banur, India, 2023, pp. 142-149, doi: 10.1109/ICACCTech61146.2023.00031.
- 82. M. R. V. V. R, S. N, S. Shankar Reddy, R. Rao Kurada, S. Mahaboob Hussain and E. L Sameera, "A Robust XG-Boost Machine Learning Model for Water Quality Estimation System by Leveraging with Chi-Square Forward Sequential Feature Selection Technique," 2023 International Conference on Ambient Intelligence, Knowledge Informatics and Industrial Electronics (AIKIIE), Ballari, India, 2023, pp. 1-7, doi: 10.1109/AIKIIE60097.2023.10390370.
- 83. R. Sahoo and H. R. Sistla, "Multiband Slotted Microstrip Antenna for Terahertz Applications," 2023 2nd International Conference on Futuristic Technologies (INCOFT), Belagavi, Karnataka, India, 2023, pp. 1-4, doi: 10.1109/INCOFT60753.2023.10425350.
- A. Gupta, L. K. Tyagi and V. V. Rama Rao M, "Potato Disease Detection Using Deep Learning," 2023 4th International Conference on Computation, Automation and Knowledge Management (ICCAKM), Dubai, United Arab Emirates, 2023, pp. 01-08, doi: 10.1109/ICCAKM58659.2023.10449500.
- 85. G. Harish, E. Suneel, D. G. Kumar, T. Jahanavi and K. V. V. Kumar, "Implementation of Leaf Disease Detection Using SVM," 2023 International Conference on Innovative Computing, Intelligent Communication and Smart Electrical Systems (ICSES), Chennai, India, 2023, pp. 1-5, doi: 10.1109/ICSES60034.2023.10465505.
- 86. K. S. Sharmila, T. R. S and P. K. Sree, "Enhancing Drug-Drug Interaction Prediction: An Unified Similarity-Based Neural Network Approach," 2023 Global Conference on Information Technologies and Communications (GCITC), Bangalore, India, 2023, pp. 1-5, doi: 10.1109/GCITC60406.2023.10425844.
- R. B. Jonnala, "Auto Braille: A Self Operatable Braille Printer For Taking Notes," 2023 Global Conference on Information Technologies and Communications (GCITC), Bangalore, India, 2023, pp. 1-6, doi: 10.1109/GCITC60406.2023.10426007.
- 88. Satyajee Srivastava, Kommisetti Murthy Raju, Deepak Dudeja Dudeja, Gagandeep Berar, Nazeer Shaik, and Abhishek YadavAuthors Info & Claims, An investigation of Malware Detection System using Deep Learning on computing Systems, ICIMMI '23: Proceedings of

the 5th International Conference on Information Management & Machine Intelligence November 2023, Article No.: 42, Pages 1 - 7, https://doi.org/10.1145/3647444.3647868

- 89. Sayan Majumder, Kommisetti Murthy Raju, Nancy Arya, Nazeer Shaik, Sanjay Tiwari, and Akanksha SinghAuthors Info & Claims, An overview Scientific Cloud computing Web-based cloud services issues and challenges, ICIMMI '23: Proceedings of the 5th International Conference on Information Management & Machine Intelligence, November 2023, Article No.: 161, Pages 1 - 7,https://doi.org/10.1145/3647444.36524688
- 90. R. K. Kushwaha, P. L. Ravikumar, M. H. Mohammed and C. Sasthi Kumar, "Integrity of Code and IoT Validation of Resource Utilization in Micro Control Unit," 2023 International Conference on New Frontiers in Communication, Automation, Management and Security (ICCAMS), Bangalore, India, 2023, pp. 1-6, doi: 10.1109/ICCAMS60113.2023.10526111.
- 91. M. R. V V R, S. N, S. S. Reddy, S. Bonthu, R. Rao Kurada and V. Vaishalini, "An Optimized Ensemble Machine Learning Framework for Water Quality Assessment System by Leveraging Forward Sequential Minimum Redundancy Maximum Relevance Feature Selection Method," 2023 International Conference on Innovative Computing, Intelligent Communication and Smart Electrical Systems (ICSES), Chennai, India, 2023, pp. 1-8, doi: 10.1109/ICSES60034.2023.10465554.
- 92. S. Bonthu, K. B. Kiran, M. Deenakonda, V. V. R. M. Rao and S. V. V. D. Jagadeesh, "Multilabel and Multi-class Classification on a Custom Dataset using Convolution Neural Networks," 2023 7th International Conference on Intelligent Computing and Control Systems (ICICCS), Madurai, India, 2023, pp. 576-579, doi: 10.1109/ICICCS56967.2023.10142828.

### **Book Chapter:**

- 1. Kadiyala KG, Yamini V, Goutham K, Katari NK. Rare earth metal-catalyzed multicomponent reactions. In: Rare earth elements: Processing, catalytic applications and environmental impact. ; 2023. p 45-58.
- Kadiyala KG, Yamini V, Goutham K, Katari NK. Photocatalysis of rare earth complexes in organic synthesis. In: Rare earth elements: Processing, catalytic applications and environmental impact.; 2023. p 225-240.
- Alex Khang, Kali Charan Rath, Surabhika Panda, Pokkuluri Kiran Sree, Santosh Kumar Panda, Revolutionizing Agriculture: Exploring Advanced Technologies for Plant Protection in the Agriculture Sector, Handbook of Research on AI-Equipped IoT Applications in High-Tech Agriculture, pp 1-22, DOI: 10.4018/978-1-6684-9231-4.ch001
- K. Ganesh Kadiyala, Naresh Kumar Katari "4 Ceramics for sensing application", Advanced Ceramic Coatings for Emerging Applications, Elsevier Series in Advanced Ceramic Materials, 2023, Pages 71-84
- Pokkuluri Kiran Sree, N. Usha Devi, Review on Healthcare Quality Using Machine Learning Methods, AI and IoT-Based Technologies for Precision Medicine, DOI: 10.4018/979-8-3693-0876-9.ch024
- 6. "P. SivaPadmini, M. Beulah Viji Christiana, R. Pitchai, Santosh Kumar, Kommisetti MurthyRaju, ""
- 7. Applications of Machine Learning in Education and Skill Developments"", Facilitating Global Collaboration and Knowledge Sharing in Higher Education With Generative AI"

### **Books Published:**

- 1. Mr. Ch. Phaneendra Varma, "Understanding Machine Learning Concepts", Walnut Publications, 9789359110622, 2023
- Dr. V V R Maheswara Rao, "Data Science for Engineers", SIPH, 979-93-5757-914-8, 2023
- 3. Mr. K Murthy Raju, "Fundamentals of AI, IoT, & BIGDATA", SIPH, 978-93-5757-732-8, 2023
- 4. Dr. A Sri Krishna, "Machine Learning for Absolute Beginners", Books Clinic Publishing, 978-93-5823-854-9, 2023
- 5. Mr. K Dileep Kumar, "Big Data Analytics Using Spark", Shree Publishing House, 978-93-88196-62-8, 2023
- 6. Mr. K Dileep Kumar, "Introduction to Data Science and R Programming", Shree Publishing House, 978-93-88196-94-9, 2023
- 7. Mr. P T S Murthy, Mr. Nageswara Rao, Dr. P Kiran Sree, Mr. A Satya Mallesh, " Fundamentals of IoT & BIGDATA", SIPH, 2023, 978-8119152537
- 8. Dr. P Kiran Sree, P B V Raja Rao, Dr. M Prasad, "Software Engineering", ASSAN publications, 2023, 9788119313136.
- 9. Mr. Murthy Raju, "Cyber Security for Beginners", Alpha International Publications, 2023, 978-93-5762-399-5
- 10. Mr.P L V D Ravi Kumar, et.al, "Cloud Based Security Management", San International Scientific Publications, 2023, 978-81-964397-8-1
- Dr. M. SUMALATHA, et.al., "Satellite Communications", COSMOS Scientific Publications, 978-81-19359-36-3

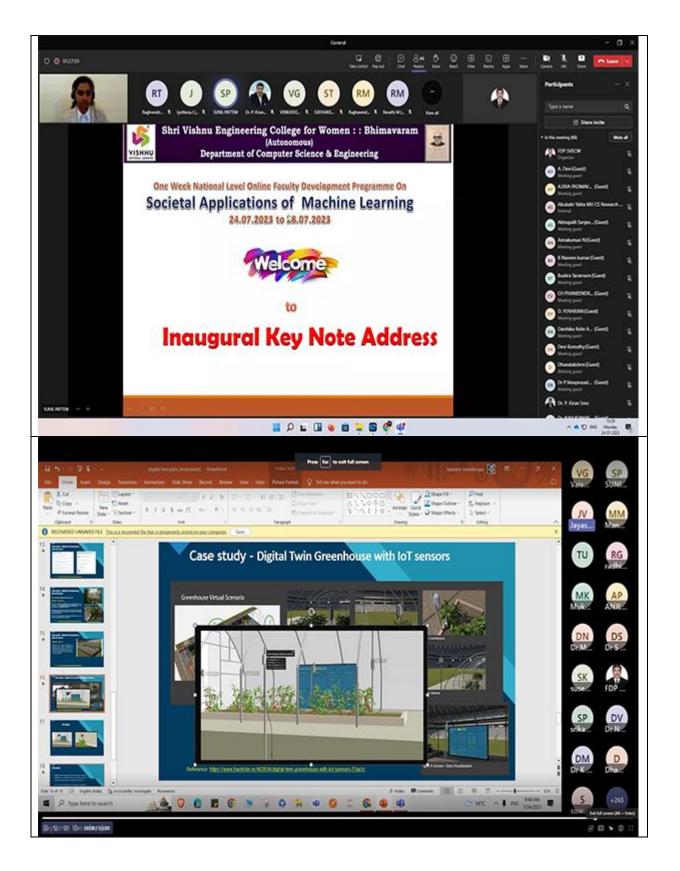
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# **Glimpses of Major Events**

21 Jun 2023 :: Celebration of International Yoga Day 2023 @ SVECW



24 July 2023:: One Week National Level Online FDP on Societal Applications of Machine Learning @ CSE Dept.





2 Aug 2023 Celebrations of National Level Concrete Canoe Competition @ CE Dept.

5 Aug 2023Webinar on "Women In Software Industry – Leaders for Sustainable Future"





17 Sep 2023 6th Graduation Day VISHNOTAV 2K23 Celebrations.

## 7 Oct 2023 Freshers' Day Celebrations @ SVECW



30 Oct 2023 Workshop on Dive into Large language models, Transformers & Generative AI @ Dept. of AI.



### 1 Nov 2023 24 Hours FAILATHON @ SVECW



22,23 Dec 2023 International Conference on "Recent Advances in Applied Sciences and Engineering" (ICRAAE-2023





1Jan 2024 New Year Celebrations @ SVECW



25 Jan 2024 Celebrations of 14th National Voters' Day @ SVECW





16,17 Feb 2024Two-Day Intensive program on Research Kick-Start by Dr. A Raju, Director (R&D), VEDIC



29 Feb 2024R&D Showcase



### 11,12 Mar 2024 TECHNOVA



20 Mar 2024MOU Signing Ceremony of CoE for Sustainable Construction Materials, In Collaboration with SVECW and Ultra Tech Cement.



22 Mar 2024 Technical Talk on "AI & Privacy" by Prof. Ponnurangam Kumaraguru (PK), IIT Hyderabad





## 17 Apr 2024Celebrations of "Sri Rama Navami" @ SVECW

21 May 2024 One Week Online FDP on "Entrepreneurial Perspectives on Green Energy and Electric Vehicle Innovation"

