



## **BVRIT HYDERABAD College of Engineering for Women**

(UGC Autonomous Institution | Approved by AICTE | Affiliated to JNTUH)  
(NAAC Accredited – A Grade | NBA Accredited B.Tech. (EEE, ECE, CSE and IT))  
Bachupally, Hyderabad -500 090

### **Department of Information Technology Centre of Excellence in Data Science**



**Name of the Coordinator:** Dr. P.Kayal

**Designation:** Associate Professor

**Email:** [kayal.p@bvrithyderabad.edu.in](mailto:kayal.p@bvrithyderabad.edu.in)

#### **About**

Centre of Excellence in Data Science serves as a specialized hub dedicated to advance data science research, education, collaboration, and innovation. This centre acts as an interdisciplinary nexus, uniting experts, scholars, students, and industry stakeholders to tackle intricate challenges, pioneer cutting-edge technologies, and cultivate data-driven solutions across various domain.

#### **Objectives**

- To become a preeminent centre for expert research in analytics and data science by concentrating on multidisciplinary research domains.
- To progress in Data science training and technology aimed at strengthening academic research and innovation in data science.
- To work on impactful projects that address real-world challenges.



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### Faculty Members

S.No.	Name	Designation	Qualification	Specialization
1	Dr. Mukhtar Ahmad Sofi	Asst.Prof	Ph.D.	Deep Learning, Computational Biology and Bioinformatics
2	Mr.A. Rajashekar Reddy	Asst.Prof	M.Tech. (Ph.D.)	NLP
3	Ms.A. Lakshmi	Asst.Prof	M.Tech. (Ph.D.)	NLP

### Infrastructure

S.No.	Name of the Equipment	Unit Cost	Quantity
1.	Ultra Super Server SYS62U-TNR Intex Xeon Silver 4310, Processor 12-Core 2.1Ghz, 18MB Cache(120W) 128 GB RAM DDR4, 2*960 GB SSD, GPU KIT NVIDIA RTX A6000	Rs. 11,02,500/-	1
2.	IBM Server X3650M4 8GB RAM 3* 600GB HDD	2,55,164.00	1
3.	Dell Power Edge R710 256 GB 4TBSATA HDD	1,82,009.00	1
4.	Dell Power Edge Rack Server R540 16GB RAM 2TB HDD Sr.No. 6XBPZ23	2,40,900.00	1
5	<b>Laptops:</b> DELL Latitude 3490 Intel Core i3 7 <sup>th</sup> GEN 8GB RAM/ 1TB HDD and 14 inch Screen	25,423.72/-	35
6	<b>Laptops:</b> DELL Latitude 3410 Intel Core i3 7 <sup>th</sup> Gen 8GB RAM/ 1TB HDD and 14 inch Screen	38,050/-	35
7	<b>Printer:</b> CANON LABP2900B Laser Printer (NMBA278179)	13,499/-	1
8	<b>Projector:</b> Hitachi CPDS 250	31100/-	1
9.	Total Internet Bandwidth in the College 1420 MBPS.		



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### List of Open-Source Software

S.No.	Name of Software
1.	RStudio
2.	Anaconda Installer
3.	Python (Scikit-Learn, TensorFlow, PyTorch), Jupyter Notebook etc.,
4.	Apache Hadoop, Spark, Flink
5.	Tableau
6.	Weka
7.	Bioinformatics Tools (Psi-Blast, DSSP, JackHMMER)

### Outcomes

1. Students are able to participate in prestigious hackathons like Smart India Hackathon (SIH), Women in Data Science (WIDS) and could reach finale, ranking in leaderboard respectively.
2. Many Sustainable students' projects were developed which were showcased in various competitions like IIT PALS, Unisys Challenge, R&D Showcase of GNITS, BVRITH, that could win prizes.
3. Faculty research projects in collaboration with industry has published article in reputed indexed journal.
4. UG, PG Students are able to work in hand with faculty on real time research projects.

### Funded Projects

1. Dr. Aruna Rao S L received Rs.5,00,000 under the **AICTE GoC** for organizing the international conference “BigData Virtual Reality, Information & Communication Technology (BVRITHCON)” ,2023.



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2. Dr. Aruna Rao S L received the **AI for Earth Grant** by **Microsoft** with **\$10000 Azure credits** for the project “**Precision Agriculture**”.
3. Dr. Aruna Rao S L & Dr. Sofi Mukhtar received Rs.3,50,000 for the conduction of ATAL FDP on **Generative AI: Transforming Education & Research**”, from 8<sup>th</sup> to 13<sup>th</sup> January 2024.
4. Dr.P.Kayal oversees the Implementation of students training in “**AI Data Quality Analyst**” under National Skill Development Corporation (NSDC) Skill Hub initiative by **Government of India** - Pradhan Mantri Kaushal Vikas Yojana 4.0 (**PMKVY 4.0**) worth around 1.1 lakh.

### List of Projects

S.No.	Title	Specialization	SDG	Faculty mentor	Academic Year
1.	Water Analytics - (Ongoing)	Analytics	6	Dr. P Kayal & Dr. Sofi Mukhtar	2023-2024
2.	Customized Named Entity Recognition for Course Networking platform	NLP	9	Dr.P. Kayal	2023-2024
3.	An Expert System for Disease Prediction and Fertilizer Recommendation using Deep Learning	Deep Learning	3	Mr.A Rajashekar Reddy	2023-2024
4.	Decoding Market trends with Long-Short Term Memory	Artificial Intelligence	8,9	Mr.P Krishna Kishore	2023-2024
5.	Computational Screening of Dyslexia and Dysgraphia using CNN	Deep Learning	3	Ms. K. Vineela	2023-2024
6.	Geo Waste Classification using Deep Neural Networks	Deep Learning	7	Ms.M. Sudha Rani	2023-2024
7.	Athletic Runner Injury prediction System	Data Science	3	Dr. P Kayal	2023-2024

8.	Pothole severity prediction system using monocular depth and width estimation deom vodes and images	Data Science	11	Dr. P Kayal	2023-2024
9.	Facial AI Synthesis: A GAN-Powered Approach for Diverse Facial Attribute Generation	Artificial Intelligence	8,9	Dr. N. Anand	2023-2024
10.	Forecasting Personality Traits with Natural Language Processing	NLP	8,9	Ms. N. Harika	2023-2024
11.	Automated Invigilation System for Offline Exam Monitoring using Deep Learning	Deep Learning	9	Dr. Mukhtar Ahmad Sofi	2023-2024
12.	Breast Cancer Prognosis using Machine Learning	Machine Learning	3	Mr. B. Srinivasulu	2023-2024
13.	CalMeter: Food Recognition and Calorie Measurement System using Deep Learning	Machine Learning	9,2	Mr. K Srikar Goud	2023-2024
14.	PG Lens: An Android App for Paying Guest Management	Machine Learning	9	Mr. B. Srinivasulu	2023-2024
15.	Pixel to Plates: Transforming Images into Recipes using CNN Model	Machine Learning	9	Dr J Kavitha	2023-2024
16.	Brain Tumor detection using U-Net R	Deep Learning	3	Dr. P Kayal Ms. Vineela	2023-2024
17.	Conversion of Natural Text to SQL Query	NLP	8,9	Ms. Vineela	2023-2024
18.	Deep Learning approaches for seq2seq problems	Bioinformatics	3	Dr. Mukhtar Ahmad Sofi	2023-2024
19.	Video streaming Caption Generator using Deep Learning	Deep Learning	9	Mr. A. Rajashekar Reddy	2023-2024

20.	Pan-Cancer Classification using Deep Learning	Bioinformatics	3	Dr. Mukhtar Ahmad Sofi	2023-2024
21.	Spoken Language Identification and Translation using Deep Learning	Deep Learning	9	Dr. P Kayal	2022-2023
22.	ML Powered Text Auto-Completion and Generation	Machine Learning	9	Dr. P Kayal	2022-2023
23.	Human NeuroRobo Interaction using NLP	Deep Learning	9	Dr. Mukhtar Ahmad Sofi	2022-2023
24.	Gaming Application for Alzheimer Disease Detection	Machine Learning	3	Dr. Aruna Rao S.L	2022-2023

### List of Publications

S.No.	Title	Name of the Journal/Conf/Book/Book Chapter	Academic year	DoI/ISSN/ISBN	Web Link
1.	Customized Named Entity Recognition Using Bert for the Social Learning Management System Platform Course Networking	Journal of Computer Science	2023-2024	10.3844/jcssp.2024.88.95	<a href="https://thescipub.com/abstract/jcssp.2024.88.95">https://thescipub.com/abstract/jcssp.2024.88.95</a>
2.	Named Entity Recognition for Medical Data Extraction Using Biobert	Proceedings of Engineering Sciences	2023-2024	10.24874/PES.SI.24.03.012	10.24874/PES.SI.24.03.012
3.	Text Description to Image Generation using Generative Adversarial Network	Proceedings of Engineering Sciences	2023-2024	10.24874/PES.SI.25.03B.015	10.24874/PES.SI.25.03B.015

4.	NeuroRobo: Bridging the Emotional Gap in Human-Robot Interaction with Facial Sentiment Analysis, Object Detection, and Behavior Prediction	International Conference on Cognitive Computing and Cyber Physical Systems, EAI - IC4S(VIT, Bhimavaram)	2024	978-3-031-48890-0	<a href="https://link.springer.com/chapter/10.1007/978-3-031-48891-7_13">https://link.springer.com/chapter/10.1007/978-3-031-48891-7_13</a>
5.	Handwritten Mathematical Symbol recognition using Neural Network Architecture	6th International Conference on Electronics, Communication and Aerospace Technology ICECA 2022	2022	978-1-6654-8271-4	<a href="https://ieeexplore.ieee.org/document/10009145">https://ieeexplore.ieee.org/document/10009145</a>
6.	An Efficient Selective Features Approach to Detect Hypothyroid Using Machine Learning	Fifth International Conference on Computer and Communication Technologies IC3T 2023	2024	978-981-99-9703-9	<a href="https://link.springer.com/chapter/10.1007/978-981-99-9704-6_26">https://link.springer.com/chapter/10.1007/978-981-99-9704-6_26</a>
7.	Design and Development of Data-Driven Product Recommender Model for E-Commerce using Behavioural Analytics	Intelligent Systems and Applications In Engineering	2024	2147-67992147-6799	<a href="https://ijisae.org/index.php/IJISAE/article/view/4884">https://ijisae.org/index.php/IJISAE/article/view/4884</a>
8.	REVEIW OF IMPACTFUL DISRUPTIVE INNOVATIONS DURING PRE AND POST PANDEMIC ERA	International Journal for Innovative Engineering and Management Research	2023	2456 – 5083	10.48047/IJEMR/V12/ISSUE 09/11
9.	An Overview of Vision Transformers for Image Processing: A Survey	(IJACSA) International Journal of Advanced Computer Science and Applications,	2023	2156-5570	DOI: 10.14569/IJACSA.2023.0140830

10.	Fastai-Powered Lung Cancer Classification Model	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	2023	2321-9653	<a href="https://www.ijraset.com/best-journal/fastai-powered-lung-cancer-classification-model">https://www.ijraset.com/best-journal/fastai-powered-lung-cancer-classification-model</a>
11.	Text To Image Generation By Using Stable Diffusion Model With Variational Autoencoder Decoder	International Journal for Research in Applied Science & Engineering Technology (IJRASET)	2023	2321-9653	<a href="https://doi.org/10.22214/ijraset.2023.56024">https://doi.org/10.22214/ijraset.2023.56024</a>
12.	A Novel Technique for Analysing the Sentiment of Social Posts Using Deep Learning Techniques	International Conference on Cognitive Computing and Cyber Physical Systems	2024	978-3-031-48887-0	<a href="https://doi.org/10.1007/978-3-031-48888-7_22">doi.org/10.1007/978-3-031-48888-7_22</a>
13.	An efficient Real time NIDS using Machine Learning methods	International Conference on Cognitive Computing and Cyber Physical Systems	2024	978-3-031-48887-0	<a href="https://link.springer.com/chapter/10.1007/978-3-031-48888-7_15">https://link.springer.com/chapter/10.1007/978-3-031-48888-7_15</a>
14.	CETR: CenterNet-Vision transformer model for wheat head detection	Journal of Autonomous Intelligence	2024	2630-5046	<a href="https://jai.front-sci.com/index.php/jai/article/view/1189">https://jai.front-sci.com/index.php/jai/article/view/1189</a>
15.	An Efficient Selective Features Approach to Detect Hypothyroid Using Machine Learning	5th International Conference on Computer and Communication Technologies (IC3T)	2024	978-981-99-9703-9	<a href="https://doi.org/10.1007/978-981-99-9704-6_26">https://doi.org/10.1007/978-981-99-9704-6_26</a>
16.	Enhancing DDoS Attack Detection in SDN: A Novel Approach with IG-RFFI Feature Selection	5th International Conference on Computer and Communication Technologies (IC3T)	2024	978-981-99-9703-9	<a href="https://doi.org/10.1007/978-981-99-9704-6_14">https://doi.org/10.1007/978-981-99-9704-6_14</a>



17.	Design and Development of Data-Driven Product Recommender Model for E-Commerce using Behavioral Analytics	International Journal of Intelligent Systems and Applications in Engineering (IJISAE)	2024	2147-6799	<a href="https://ijisae.org/index.php/IJISAE/article/view/4884">https://ijisae.org/index.php/IJISAE/article/view/4884</a>
18.	Evolutionary Optimization of Dominating Set-Based Virtual Backbone Cluster Scheduling for Enhancing Energy Efficiency in Asymmetric Radio WSNs	International Journal of Intelligent Systems and Applications in Engineering (IJISAE)	2024	2147-6799	<a href="https://ijisae.org/index.php/IJISAE/article/view/4886">https://ijisae.org/index.php/IJISAE/article/view/4886</a>
19.	Applied Behavioural Analysis Therapy for Autism Spectrum Disorder Students through Virtual Reality	International Journal of Computational Vision and Robotics	2022	1752-914X	DOI-10.1504/IJCVR.2022.10051122
20.	Performance Analysis of Various Machine Learning-Based Algorithms on Cybersecurity Approaches	International Conference on Expert Clouds and Applications	2023	978-981-99-1744-0/	<a href="https://link.springer.com/chapter/10.1007/978-981-99-1745-7_60">https://link.springer.com/chapter/10.1007/978-981-99-1745-7_60</a>
21.	Effectiveness of automated chatbots for operational support and self service based on fuzzy classifiers for ASD	Soft Computing	2023	1433-7479	<a href="https://link.springer.com/article/10.1007/s00500-023-08541-x">https://link.springer.com/article/10.1007/s00500-023-08541-x</a>
22.	A report on early prediction, detection &	Journal of Statistics & Management Systems	2023	2169-0014	<a href="https://tarupublications.com/doi/10.47974/JSMS-960">https://tarupublications.com/doi/10.47974/JSMS-960</a>

	diagnosis of Alzheimer's disease				
23.	Prediction and Its Impact on Its Attributes While Biasing Machine Learning Training Data	2022 Third International Conference on Smart Technologies in Computing, Electrical and Electronics (ICSTCEE)	2022	978-1-6654-5664-7	<a href="https://ieeexplore.ieee.org/abstract/document/10100010/authors#authors">https://ieeexplore.ieee.org/abstract/document/10100010/authors#authors</a>
24.	Artificial Intelligence Biosensing System on Hand Gesture Recognition for hearing Impaired	International Journal of operation Research and information system	2022	1947-9328	<a href="http://doi.org/10.4018/IJORIS.306194">http://doi.org/10.4018/IJORIS.306194</a>
25.	Artificial intelligence-based breast cancer detection using WPSO	International Journal of operation Research and information system	2022	1947-9328	<a href="https://www.igi-global.com/article/artificial-intelligence-based-breast-cancer-detection-using-wpso/306195">https://www.igi-global.com/article/artificial-intelligence-based-breast-cancer-detection-using-wpso/306195</a>

### List of Patents

- Dr. D. Srinivasa Rao, Associate Professor Dept. of IT, Mr. B. Srinivasulu Assistant Professor Dept. of IT “**Smart Agriculture Automatic Monitoring System Using Artificial Intelligence**” with Application No: 202441005082 on 9<sup>th</sup> February 2024.
- Dr. D. Srinivasa Rao, Associate Professor Dept. of IT, Mr. B. Srinivasulu Assistant Professor Dept. of IT “**Voice-Based Email System Using SVM Algorithms: A Novel Approach for Enhanced Communication Accessibility**” with Application No: 202441008226 on 8<sup>th</sup> March 2024.
- Mr. B. Srinivasulu, Mr.K.Srikar Goud, Mr.Krishna Kishore, Mr.RajaSekhar Reddy Ms.Bharathi K, Assistant Professor Dept. of IT “**Text Description to Generative Adversarial Network-Based Image Generation**” with Application No: 202441011397 on 8<sup>th</sup> March 2024.



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- Dr. P Kayal, Dr. Mukhtar Ahmad Sofi, Dr. Aruna Rao SL, Dept.of IT “**System, Apparatus, And Method for Assessment Of Suitability Of Land For Horticultural Plants**” with Application No: 202341071569 on 1st December 2023.
- Dr. P Kayal, Associate Professor, Dept.of IT, “**Artificial Intelligence Based Autism Spectrum Disorder (ASD) Management System and Method Thereof**” with Application No: 202241059063 on 28th October 2022.

### Online Certification

- Dr.P. Kayal completed “Time Series Analysis in Python” offered by Udemy,2023.
- Dr.P. Kayal completed “NLP with Python” offered by Udemy,2023.
- Dr.P. Kayal completed Deep Learning with TensorFlow, a course of study offered by IBM, online learning, edX.
- Mr.Rajashekar Reddy completed “SQL for Data Science”, offered by Coursera

### Activities

- ❖ Dr. Aruna Rao SL and Dr. Mukhtar Ahmad Sofi, Department of Information Technology, BVRIT Hyderabad College of Engineering for Women organized the “AICTE Training and Learning Sponsored Faculty Development Program on **Generative AI: Transforming Education & Research**”, from 8<sup>th</sup> to 13<sup>th</sup> January 2024.
- ❖ Dr. Aruna Rao SL conducted the AICTE approved international conference “BigData Virtual Reality, Information & Communication Technology (BVRITHCON)” during December 2023.
- ❖ Dr.P.Kayal oversees the Implementation of students training in “**AI Data Quality Analyst**” under National Skill Development Corporation (NSDC) Skill Hub initiative by Government of India - Pradhan Mantri Kaushal Vikas Yojana 4.0 (PMKVY 4.0).
- ❖ Dr. P. Kayal, Dept. of IT organized a five-day FDP on “**Power of Visualization in Analytics**”, from 16th to 21st August 2023.

### Achievements

- ❖ Dr. Mukhtar Ahmad Sofi mentored student project titled “**Automated Invigilation system for off-line exam monitoring using deep learning**”, won 3<sup>rd</sup> prize with a cash price of Rs.3000 in R&D Expo organized by GNITS, 6<sup>th</sup> March 2024.



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- ❖ Dr. P Kayal Mentored student project titled “Pothole Pathfinder”, was selected for the **Smart India Hackathon (SIH-2023) Grand Finale**.
- ❖ Dr. P. Kayal, Associate Professor, Dept. of IT invited as Speaker for “**ATAL Sponsored Faculty Development Program on Generative AI: Transforming Education & Research**” organised by Department of Information Technology, BVRIT Hyderabad College of Engineering for Women on 8th January 2024.
- ❖ Dr. P. Kayal, Associate Professor Dept. of IT served as keynote Speaker and delivered the talk on Intelligent data Convergence. in the “**ACM Digital Futures Forum Conference 2023**” conducted by Stanley College, Hyderabad on 15<sup>th</sup> December 2023
- ❖ Dr. P. Kayal, Associate Professor Dept. of IT served as Resource person for the one-day workshop on “**Supervised & Unsupervised Techniques for Predictive learning**” conducted by Saveetha University, Chennai on 29th December 2023.
- ❖ Dr. P Kayal Mentored student project titled “Named Entity Recognition for Medical Data extraction using Biobert”, won the **Best paper Award** in the First International Conference on Recent Advances in Applied Sciences and Engineering (Icraae-2023)
- ❖ Dr. Mukhtar Ahmad Sofi mentored student project titled “Human NeuroRobo Interaction using NLP”, won **1<sup>st</sup> prize with a cash prize of Rs.5000 in R&D Showcase 2023**, organized by BVRIT HYDERABAD College of Engineering for Women.

### MoU's

1. MOU signed with AIMER for collaborative projects Data Science Applications.
2. MOU signed with Black Buck Engineers for various collaborative Data Science initiatives.

### Gallery:



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## FDP Power of Visualization in Analytics -Day 5





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**Skill India**  
कौशल भारत - कुशल भारत

**PMKVY**  
प्रधानमंत्री कौशल विकास योजना

**N.S.D.C**  
National Skill Development Corporation  
Transforming the skill landscape



**BVRIT HYDERABAD COLLEGE OF ENGINEERING FOR WOMEN**

**SKILL HUB INITIATIVE**

**PRADHAN MANTRI KAUSHAL VIKAS YOJANA 4.0**

Presenting

**AI - DATA QUALITY ANALYST ON PMKVY 4.0 PORTAL**







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