



Bapuji Educational Association (R.)

Bapuji Institute of Engineering & Technology
Davangere - 577004

(AFFILIATED TO VTU BELAGAVI, APPROVED BY AICTE, NEW DELHI)
ACCREDITED BY THE NAAC WITH 'A' GRADE



Department of Computer Science & Engineering

UniCS



THE TECH MESSENGER

News Letter - Volume of the Year

JANUARY 2022 - JUNE 2022

"THE BEAUTIFUL THING ABOUT LEARNING IS THAT NO ONE CAN TAKE IT AWAY FROM YOU."

- B. B. KING

Vision of the Institute

"To be a centre of excellence recognized nationally and internationally, in distinctive areas of engineering education and research, based on a culture of innovation and invention"

Mission of the Institute

"BIET contributes to the growth and development of its students by imparting a broad based engineering education and empowering them to be successful in their chosen field by inculcating in them positive approach, leadership qualities and ethical values "

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- M1: Adapting best teaching and learning techniques that cultivates Questioning and Reasoning culture among the students.
- M2: Creating collaborative learning environment that ignites the critical thinking in students and leading to the innovation.
- M3: Establishing Industry Institute relationship to bridge the skill gap and make them industry ready and relevant.
- M4: Mentoring students to be socially responsible by inculcating ethical and moral values.

Program Educational Objectives (PEOs)

- PEO1 - To apply skills acquired in the discipline of Computer Science and Engineering for solving societal and industrial problems with apt technology intervention.
- PEO2 - To continue their career in industry/academia or to pursue higher studies and research.
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- PSO3 - Ability to learn and apply the concepts and construct of emerging technologies like Artificial Intelligence, Machine learning, Deep learning, Big Data Analytics, IoT, Cloud Computing, etc for any real time problems.

Newsletter Objectives

- To showcase the achievements of the Students and Faculty members from the CS & E department in Curricular, Co-curricular and Extra-curricular Activities.
- To get the awareness on recent trends in the area of Computer Science & Engineering and related areas.

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The Department of Computer Science and Engineering of BIET has been at the forefront of churning out software engineers with a high caliber of technical expertise. It continues to foster and engender the innovation and breadth of vision necessary to excel in the blooming software industry.

From the Editorial...

Greetings to all!

The department is cheerful to present the latest edition of the Department of CSE Newsletter. It motivates, enlightens and enables the Student & Staff community to focus on their goals and achieve more. This newsletter explores the hidden talents, commitment, involvement and achievements of the Department Students and Staff Community in their Extra and Co Curricular activities to the world.

The yearly newsletter of the Department of CSE covers the information about the Faculty Development Programme, faculty participation, student activities.

We look forward to your continued contribution and participation in this Newsletter. Your good ideas, comments or valuable suggestion about this Newsletter are welcome. This may lead to enhance the quality and professionalism of this newsletter in forth coming editions. Thank you for choosing and spending time with this newsletter.

We hope, this Newsletter encourage you to conquer more in your field.

sd/-
Editorial



Message from HOD's Desk

I feel happy to say that, Department of Computer Science & Engineering is releasing its Annual Newsletter “Tech Messenger” for the year 2022.

Department is instrumental in “Strong Alumni and Industry Connect” through which, achieving its goal of making students industry ready and employable by conducting Hackathons, Coding challenges, Real time project development contests and entrepreneur awareness activities. Faculty members of the department are highly encouraged to carry out their research work by providing conducive environment. Department forum “UniCS” is a platform to bring out the hidden talents of students. Department regularly organizes Technical Talks, alumni interactive sessions, workshops, Hackathons for students and FDPs for faculties in association with industries and Alumni. This newsletter showcases the glimpses of the activities held in the department. I congratulate editors of the Newsletter for their effort in bringing out this Newsletter in an attractive manner with all the events covering from January 2022 to June 2022. I wish them all the best.

Dr.Nirmala C.R.
Prof. & Head
Dept. of CSE

NEWS LETTER COMMITTEE

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Dr. Shamanur Shivashankarappa
MLA, Hon. Secretary, BEA

Sri. S. S. Mallikarjuna
Joint Secretary, BEA

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Dr. Nirmala C R
Professor and Head

Editor

Prof. Waseem Khan
Assistant Professor

Prof. Gangamma Hediylad
Assistant Professor

Student Editor

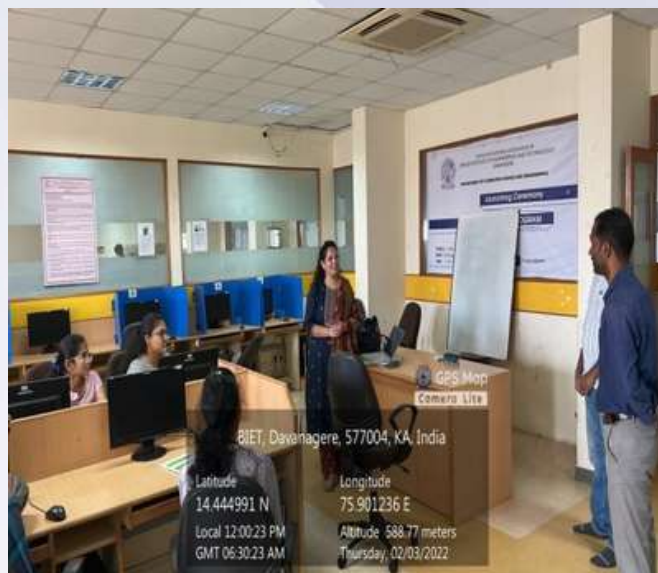
Mr. Dinesh Narayanan S

FDP/WORKSHOP ATTENDED

- Dr. Pradeep N has Participated in interactive session on Smart India Hackathon 2022 conducted by SIH organizers on 11/01/2022 and 25/02/2022
- Prof. Abdul Razak M S has attended 5 days online FDP on "Web Development Using Django" from 31st jan to 4th feb 2022 conducted by PESIT Shivamogga.
- Dr. Chethana Prakash and Dr. Roopa G M have attended One Week Research Development Program on " Problem Formulation, Publication, Proposal and Thesis Writing" from 07/02/2022 To 12/02/2022 organized by Alvas Institute of Engineering and Technology, Moodbidri in association with IITA and CSI.
- Prof. Anu C S and Prof. Preethi B have attended 5 days online workshop on Data Analysis Using Statistical Learning Techniques organized by IIT Madras from 21/02/2022 to 26/03/2022.
- Prof. Santosh K C, Dr. Gururaj T, Dr. Ashoka K , Dr. Naveen K R, Prof. Gangadharappa S, Prof. Gangamma H attended AICTE sponsored UHV FDP on "Incorporating Universal Human Values in education" from 09/05/2022 to 13/05/2022.
- Prof. Jagadeesh A N has attended one week online workshop on “Vedic Mathematics and its applications” organized by Annant Gyan from 9/5/2022 to 14/5/2022.
- Dr. Gururaj T has attended 5 Days Online FDP on “Deep learning towards Engineering and Bio-medical Applications” held from 16th to 20th May 2022 organized by department of CSE, Mepco Schlenk Engineering college (Autonomus).
- Prof. Shilpa K C has attended 5-Day Faculty Development Program (FDP) on “Data Analysis with SPSS” held from 1st - 8th June 2022, organised by CMS Business School, Jain (Deemed-to-be University) in association with Institute of Analytics (IoA), London.
- Dr. Arun Kumar G Hiremath has attended Pre-conference tutorial at the seventh international conference on "Emerging Inforfomation, Communication and Applications" ERCIC by NITTE Meenakshi Institute of Technology (SCOPUS, SPRINGER).

TRAINING PROGRAM

- The Training Program was conducted to students placed in “Skyscend India Private Limited” on 03rd February 2022.



Interaction with students during Training Program

EVENTS ORGANIZED in Department

- Department Conducted event “Compliance of Scheme and Syllabus for all CSE/ISE: NEP-2021” in association with IQAC Cell, BIET was held on 28th January 2022 by the Resource person Dr. Shreedhar K S, Profesoor, CS&E, UBDTCE, Davangere.



Inauguration of the event by the Resource Person

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- CS&E Dept. and Training and Placement cell has organized MoU Exchange Program with “**Fresher Profile – Placement Assistance Portal**” on 10/02/2022.



Dr. Manvendra, Dr. Devendrappa, Mr. Shivaprasad K, Santosh Navale, Fresher profiles, Bangalore, Dr. Aravind H B, Prof. Y. Vrushabhendarappa, Dr. Nirmla C R and all placement coordinators

- Department of Computer Science and Engineering is involved in signing 5 years of Membership with “**ICT Academy Bangalore**” on 17/02/2022. The department is responsible for executing all the activities of ICT Academy.



D Vishnu Prasad, State head- Karnataka at ICT Academy, during ICT Academy Associate Membership Certificate Exchange

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- Department of Computer Science and Engineering Conducted “**CODE-O-FIESTA**” for 1st year students on 23/02/2022.



Inauguration of CODE-O-FIESTA

- In connection with International Women’s Day 2022, Department of CS&E conducted “**Ikebana: Flower arrangement Competition**” for girls and lady faculty members on 14/03/2022.



Faculties participating during the Competition

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- The inauguration of “**Internal Hackathon for SIH 2022**” function was held on 23-03-2022. Rakesh L, Director Ada Lovelace Software Pvt. Ltd., Shreyas S Vernekar, Co-Founder and CEO of Rove Labs Pvt. Ltd. and Sunil K V, DGM-IT, Davangere Smart City Limited are the Jury members for Evaluation.



Glimpses of the Event

- Dr. Roopa G M, Dr. Gururaj T and Prof. Shwetha G delivered the topic on “**Virtual and Augmented Reality changing Horizons in dentistry**” in Dental College of Science for Knowledge enhancement Program on 05th April 2022.



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- **“FRISSION 2022”** Branch Fest activities were conducted under the Banner of UniCS on 10th and 11th June 2022.



Inauguration of FRISSION-2022



Glimpses of Tug of war, Dog and the Bone on 11th June 2022

PROJECTS SANCTIONED BY KSCST/ Or any other notable student projects

- Student project titled “Detection of concept drift in telecommunication stream data” guided by Prof. Abdul Razak M S was approved and funded by KSCST, 45th Series of Student Project Programme.
- Student project titled “Analysis and Identification of Gastrointestinal Diseases using Deep Learning Approaches” guided by Dr. Pradeep N and Prof. Arjun H was approved and funded by KSCST, 45th Series of Student Project Programme.
- Student project titled “Cotton Leaf Disease Detection using Deep Learning” guided by Prof. Naveen H M was approved and funded by KSCST, 45th Series of Student Project Programme.
- Student project titled “LoRa based framework for smart greenhouse monitoring system” guided by Dr. Roopa G M and Prof. Vaishnavi A I was approved and funded by KSCST, 45th Series of Student Project Programme.
- Student project titled “Deep learning Algorithms for Analysis and Prediction of Cardiovascular Disease” guided by Dr. Pradeep N and Prof. Arjun H was approved and funded by KSCST, 45th Series of Student Project Programme.
- Student project titled “Smart Solid Waste Management with IoT and Machine Learning” guided by Dr. Nirmala C R and Prof. Rachana G S was approved and funded by VTU.
- Student project titled “Krushi Mitra” guided by Prof. Preethi B was approved and funded by VTU.
- Student project titled “Underwater Image Enhancement Via Medium Transmission Guided Multi Color Space Embedding” guided by Prof. Gangadharappa S was selected for funding under Institute sponsored project
- Student project titled “Wheeled Robot for Isolation Ward” guided by Prof. S.B. Mallikarjuna and Prof. Shryavani K was selected for funding under Institute sponsored project.

STUDENTS ACTIVITIES/Programs organized

- Dept. of CS&E Conducted Technical quiz “TCS Techbytes” on 19th Feb 2022.



- “Progyan 4.0” In-House Project Exhibition of Final Year Students was held on 20th and 21st of April 2022, three batches were selected for Best Projects of the year 2021-22 out of 37 Batches.



Project Evaluators are Sandeep S H -Alumini 2010, Senior Tech Lead, Sachin S Alumni 2015, Managing Director, Prowork Code India Pvt. Ltd.

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- Department of Computer Science and Engineering organized “Crash Course on C++” from 23rd May 2022 to 27th May 2022 for 4th semester students.



Glimpses of Crash Course

- “39th Graduation Day and Award Ceremony” in the honor of Class of 2021 and Top Scoring Students was conducted on 7th May 2022.



Glimpses of Graduation Day-2021

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- “Farewell Party & Alumni Meet” for the batch of 2016-2020 was held on 28th May 2022.



Glimpses of the Event

- Writing is the new luxury “LaTeX” Workshop for 6th and 4th Semester students was conducted on 07/06/2022. Mr. Sohan Jain, 6th Semester was the resource person for the workshop.



Students participation in the Workshop

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- **AICTE** activity point report Evaluation of 2018-22 batches held on 29/06/2022.



Evaluation of report by Dr. Krishna Kumar T K, NSS Coordinator.

- Alumni Mr. Channa Bankapur visited CS&E department on 30/06/2022 and addressed 4th semester Students for placement preparation.



PAPER PRESENTED /PUBLISHED by faculty

- Dr. Nirmala C. R, published a paper “Hybrid time centric recommendation model for e-commerce applications using behavioral traits of user”, Inf Technol Manag (2022) in Springer link.
- Santosh K C and Pradeep N. “Machine Learning Techniques for Human Age and Gender Identification Based on Teeth X-Ray Images”, Hindawi, Q2 Journal of Healthcare Engineering.
- Prof. Abdul Razak M. S., Dr. Nirmala C. R, Prof. Maha Aljohani and Dr. B. R. Sreenivasa published a paper “A novel technique for detecting sudden concept drift in healthcare data using multi-linear artificial intelligence techniques”, Frontiers in Artificial Intelligence.
- Abdul Razak M.S, Dr. Nirmala C R, Chetan B B, Dr.Mohammed Rafi, Dr. Sreenivasa B R published a paper “Online Feature Selection using Pearson Correlation Technique”, 7th IEEE international conference on "Recent Advances and Innovations in Engineering", at NITK Surathkal.
- Dr. Naveen Kumar K R published a paper “IOT Based Road Safety System”, International Journal of Innovative Research in Computer and Communication Engineering.
- Dr Nirmala CR, Dr Gururaj. T, Dr Naveen K R published a paper “Monitoring activity and detecting unexpected events in surveillance footage using Deep CNN”, International journal of Advances in Computer Science and Technology(IJACST)

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PLACEMENT DETAILS

Sl. No	Name of the Employer	No of Students Placed
1	Wipro Elite	27
2	KPMG	24
3	Inspirage	20
4	TCS NINJA	17
5	Infosys	11
6	SLK Software	7
7	Quest Global	6
8	FAI	6
9	Zensar	6
10	Silver Peak	5
11	Skyscend	5
12	E&Y	4
13	IBM	1
14	Alt Digital	1
15	WorkForce Software	2

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Sl. No	Name of the Employer	No of Students Placed
16	Herin Electronics	3
17	Inube	3
18	MAPLE LABS	2
19	Altimetrik	1
20	Rakuten	1
21	Mindtree	1
22	Capgemini	1
23	Cognizant	1
24	Birlasoft	1
25	Sonata	1
26	Wiley Mthree	1
27	Cloudifyops	1
28	IBM	1
29	Cleo Software	1
30	Knodtec	1
Total Placed		162

UNIVERSITY WORK carried by Faculty

- Dr. Nirmala C R has appointed as examiner for Ph.D. viva voce and UG practical examination.
- Dr. Chetana Prakash has appointed as examiner for UG practical examination and M.Tech project work viva voce.
- Dr. Pradeep N has appointed as examiner for Ph.D. viva voce and M.Tech project work viva voce.
- Dr. Ashoka K has appointed as Board of Examiner for B.E Examination.
- Prof. Raghu B.R, Prof. Naresh Patel K M, Prof. Naveen H M, Prof. Naveen K R, Prof. Gangadharappa S appointed as valuator for UG answer scripts and examiner for UG practical examination.
- Prof. Waseem Khan, Prof. A N Jagadish, Prof. Preethi B, Prof. Gangamma Hediylad, Prof. Anu C S appointed as examiner for UG practical examination and UG answer scripts.

Ph.D. Awarded

- Prof. Naveen Kumar K R awarded Ph.D. for the thesis titled “Optimized Data Mining Techniques for Zone Delineation and Yield Prediction for Precision Agriculture” under the guidance of Dr. Nirmala C R on March 10, 2022.
- Prof. Arun Kumar G H awarded Ph.D. for the thesis titled “Optimized Data Mining and Machine Learning Techniques for Spatial Outlier Detection and Removal in Precision Agriculture” under the guidance of Dr. Nirmala C R on March 10, 2022.

Article



Dr. Naveen Kumar K R

Assistant Professor

Dept. of CS&E

Software Design Pattern

In software engineering, a software design pattern is a general, reusable solution to a commonly occurring problem within a given context in software design. It is not a finished design that can be transformed directly into source or machine code. Rather, it is a description or template for how to solve a problem that can be used in many different situations. Design patterns are formalized best practices that the programmer can use to solve common problems when designing an application or system.

Object-oriented design patterns typically show relationships and interactions between classes or objects, without specifying the final application classes or objects that are involved. Patterns that imply mutable state may be unsuited for functional programming languages. Some patterns can be rendered unnecessary in languages that have built-in support for solving the problem they are trying to solve, and object-oriented patterns are not necessarily suitable for non-object-oriented languages. Design patterns may be viewed as a structured approach to computer programming intermediate between the levels of a programming paradigm and a concrete algorithm.

Practice

Design patterns can speed up the development process by providing tested, proven development paradigms. Effective software design requires considering issues that may not become visible until later in the implementation. Freshly written code can often have hidden subtle issues that take time to be detected, issues that sometimes can cause major problems down the road. Reusing design patterns helps to prevent such subtle issues, and it also improves code readability for coders and architects who are familiar with the patterns. In order to achieve flexibility, design patterns usually introduce additional levels of indirection, which in some cases may complicate the resulting designs and hurt application performance.

By definition, a pattern must be programmed anew into each application that uses it. Since some authors see this as a step backward from software reuse as provided by components, researchers have worked to turn patterns into components. Meyer and Arnout were able to provide full or partial componentization of two-thirds of the patterns they attempted. Software design techniques are difficult to apply to a broader range of problems. Design patterns provide general solutions, documented in a format that does not require specifics tied to a particular problem.

Structure

Design patterns are composed of several sections. Of particular interest are the Structure, Participants, and Collaboration sections. These sections describe a design motif: a prototypical micro-architecture that developers copy and adapt to their particular designs to solve the recurrent problem described by the design pattern. A micro-architecture is a set of program constituents (e.g., classes, methods...) and their relationships. Developers use the design pattern by introducing in their designs this prototypical micro-architecture, which means that micro-architectures in their designs will have structure and organization similar to the chosen design motif.

Classification and list

Design patterns had originally been categorized into 3 sub-classifications based on what kind of problem they solve. Creational patterns provide the capability to create objects based on a required criterion and in a controlled way. Structural patterns are about organizing different classes and objects to form larger structures and provide new functionality. Finally, behavioral patterns are about identifying common communication patterns between objects and realizing these patterns.

Creational patterns

Name	Description
Abstract factory	Provide an interface for creating families of related or dependent objects without specifying their concrete classes.
Builder	Separate the construction of a complex object from its representation, allowing the same construction process to create various representations.
Dependency Injection	A class accepts the objects it requires from an injector instead of creating the objects directly.
Factory method	Define an interface for creating a single object, but let subclasses decide which class to instantiate. Factory Method lets a class defer instantiation to subclasses.
Singleton	Ensure a class has only one instance, and provide a global point of access to it.

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Structural patterns

Name	Description
Adapter, Wrapper, or Translator	Convert the interface of a class into another interface clients expect. An adapter lets classes work together that could not otherwise because of incompatible interfaces. The enterprise integration pattern equivalent is the translator.
Bridge	Decouple an abstraction from its implementation allowing the two to vary independently.
Composite	Compose objects into tree structures to represent part-whole hierarchies. Composite lets clients treat individual objects and compositions of objects uniformly.
Decorator	Attach additional responsibilities to an object dynamically keeping the same interface. Decorators provide a flexible alternative to subclassing for extending functionality.

Behavioral patterns

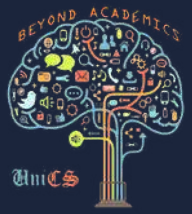
Name	Description
Blackboard	Artificial intelligence pattern for combining disparate sources of data
Chain of responsibility	Avoid coupling the sender of a request to its receiver by giving more than one object a chance to handle the request. Chain the receiving objects and pass the request along the chain until an object handles it.
Iterator	Provide a way to access the elements of an aggregate object sequentially without exposing its underlying representation.
Observer or Publish/subscribe	Define a one-to-many dependency between objects where a state change in one object results in all its dependents being notified and updated automatically.
Strategy	Define a family of algorithms, encapsulate each one, and make them interchangeable. Strategy lets the algorithm vary independently from clients that use it.



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The yearly newsletter of the Department of CSE covers the information about the Faculty Development Programme, faculty participation, student activities.

We look forward to your continued contribution and participation in this Newsletter. Your good ideas, comments or valuable suggestion about this Newsletter are welcome. This may lead to enhance the quality and professionalism of this newsletter in forth coming editions. Thank you for choosing and spending time with this newsletter.

We hope, this Newsletter encourage you to conquer more in your field.

sd/-
Editorial



Message from HOD's Desk

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- Dr. Chetana Prakash was the reviewer for "IEEE international conference on Data Science and Information System" organized by the Malnad College of Engineering, Hassan, India in association with IEEE Bangalore section and IEEE Mysore subsection on 29/07/2022 to 30/07/2022.
- Prof. Raghu B R and Prof. Waseem Khan attended the course on "Cyber Security" under Microsoft Cybershikshaa for Educators Program held from 24/08/2022 to 02/09/2022 by ICT Academy.
- Prof. Waseem Khan and Prof. Anusha N attended two weeks ATAL FDP on "Intelligent Schemes for Cyber Security" from 05/09/2022 to 16/09/2022 at UBDTCE, Davangere.
- Prof. Santosh K C and Prof. Gangadharappa S has attended One week National Level Workshop on "Data Analytics and Learning" 05/09/2022 to 10/09/2022.
- Prof. Rachana G Sunkad, Prof. Supreetha S M attended 3 days FDP on "Insights to Metaverse" in VVCE College, Mysore from 06/09/2022 to 08/09/2022.
- Dr. Nirmala C R, Prof & HOD was the resource person and delivered a talk on "Intelligent Schemes for Cyber Security" on 14-09-2022 in two week FDP organized by UBDTCE, Davanagere.
- Dr. Pradeep N attended Webinar on "Intellectual Property and Academics" organized by Presidency University, Bengaluru on 07/10/2022.
- Prof. Jagadeesh A N Attended Five day workshop on "Renewable energy trends and innovation" organised by Annantgyan from 31/10/2022 to 04/10/2022.
- Prof. Abdul Razak and Dr. Arun Kumar G H Attended 5 Days Faculty Enablement Program (FEP) on "Artificial Intelligence" offered by Infosys Springboard Platform from Nov 14/11/2022 to 18/11/2022.

- Dr. Chetana Prakash, the Chairman of BOE has attended the meeting on 18th November 2022 at VTU, "JNANA SANGAMA" Belagavi to discuss about exam related work.
- Prof. Chandrashekar M V attended 5 days FDP on "Robotic Process Automation-Automation Anywhere" conducted by ICT Academy on 14 Nov 2022 to 18 Nov 2022 at BNM Institute of Technology, Bengaluru.
- Prof. Supreetha N M, Prof. Shwetha H U and Prof. Kaveri C attended 3 days FDP on "Leadership Skills for Everyone" on 28/11/2022 to 30/11/2022 at GMIT, Davanagere.
- Dr, Pradeep N Attended 5-Day Faculty Development Program on "Data Science'22 - Contemporary Tools and Techniques", conducted by Department of IS&E, Nitte Meenakshi Institute of Technology, Bengaluru, from 12/12/2022 to 16/12/2022.

EVENTS ORGANIZED in Department

- **"Code-A-Thon"** a technical coding event for 4th Semester CS&E students was held on 04/08/2022 by Dr. Naveen Kumar K R.



Glimpses of the Event

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- 5 Days FDP on “**Microsoft Power BI**” organized by CS&E Dept. in association with ICT Academy from 10/10/2022 to 14/10/2022.



Glimpses of Workshop

- Orientation Session for CSE faculties on “**Cloud & DevOps Lab**” on 15/10/2022 by Mr. Santosh Navale, Director, Fresher Profiles Private Ltd, Bengaluru.



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- Faculties of CS&E visited “**Satellite Command Control Center**” at Smart City Ltd. Davangere on 21/10/2022.



Faculties visited Satellite Command Control Center

- Dr. Nirmala C R and Dr. Pradeep N has met Dr. S Vidyashankar Vice chancellor of VTU on 27-10-22 along with Principal, Director and other HOD's of BIET and had a discussion.



- Dept. CS&E conducted “**Java Boot camp and Hackathon**”, one week program for 5th semester CS&E students to know the value of Java in IT sector, by Resource person was Dr. Naveen Kumar K R and Prof. Abdul Razak M S from 06/12/22 to 10/12/2022.



Glimpses of Java Boot Camp Event

- Dr. Nirmala C R, Dr. Chetana Prakash, Prof. S B Mallikarjun along with Resource Person Mr. Vinod Kumar Iyer, CEO of iNube software solution. had Panel Discussion on “**NEP in higher Professional education and impact on placements of the new emerging branches under CSE**” to 1st year CSE students on 09/12/2022 at BIET, Davanagere.



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- Department of CS&E conducted “**C Quest competition**” under UniCS for all semester students on 16/12/2022.



Glimpses of Competition

- Department of CS&E conducted 2 days’ workshop on “**Cyber security & Ethical Hacking**” under UniCS in association with Cybersapiens for 45 5th semester girls students on 16th & 17th December, 2022.



Glimpses of Workshop

THE TECH MESSENGER

- One day workshop on “**Cracking product based company interviews**” with Mr. Channa Bankapur Alumni -2000 (CSE) who is Ex-Google, Microsoft and Adobe Employee for 5th semester CSE/ISE Students on 29/12/2022.



STUDENTS ACTIVITIES/programs organized

- “**CareerGyan**” for 5th Semester students by Shiva Krishna H R, Director, Bengaluru on 17/10/2022.



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- **“Youth Talk Day”** was held on 31/10/2022 by Mr. Jakaula, Microsoft Certified Expert from ICT Academy to CS&E students.



- **BPL Inauguration”** was held on 14th Nov 2022 by CS&E Department.



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- Mr. Avinash Gujjar, Skyscend company addressed 3rd and 5th semester CS&E students about **“Balancing Mental Health, Trending Technologies, Opportunities Challenges and Threats”** on 15/11/2022.



Glimpses of Event

- Dept. of CS&E organized **“Forum Inauguration, Fresher’s day and Invited Talk”** on 26/11/2022.



Glimpses of Forum Inauguration

- Pre Placement talk to 5th semester CS&E students on Placement Orientation Session by Pentagon Space in association with Training & Placement cell was conducted on 01/12/2022 at BIET, Davanagere.



- Dr. Nirmala C R gave the Presentation on Placement orientation Session in association with Training & Placement cell to 1st year students (2023 batch), was conducted on 02.12.2022 at BIET, Davanagere.
- Placement talk to 5th and 7th semester CSE students on “**Placement in Recession**” by Mr. Vinod Kumar Iyer in association with Training & Placement cell was conducted on 09/12/2022 at BIET, Davanagere.



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- One day workshop on **“Techniques and Strategies Recipes for building a Modern Database Application and Hands on session”** to 5th semester CS&E on 14/12/2022 by CS&E faculties.
- Dept. of CS&E conducted **“UHV activities”** for 5th semester students on 30/12/2022 at Chitradurga and nearby villages.



PAPER PRESENTED /PUBLISHED by faculty

- Dr. Nirmala C. R, published a paper “Hybrid time centric recommendation model for e-commerce applications using behavioral traits of user”, Inf Technol Manag (2022) in Springer link.
- Naseer R, Dr. Mohamed Rafi published a paper “A Deep Learning Approach for Biometric Security in Video Surveillance System Using Gait” in International Journal of Safety and Security Engineering.
- Santosh K C and Pradeep N. “Machine Learning Techniques for Human Age and Gender Identification Based on Teeth X-Ray Images”, Hindawi, Q2 Journal of Healthcare Engineering.
- Prof. Abdul Razak M. S., Dr. Nirmala C. R, Prof. Maha Aljohani and Dr. B. R. Sreenivasa published a paper “A novel technique for detecting sudden concept drift in healthcare data using multi-linear artificial intelligence techniques”, Frontiers in Artificial Intelligence.
- Prof. Shilpa K C et al., published a paper “Degree-Based Entropy Descriptors of Graphenylene Using Topological Indices” in TechScience Press.
- Prof. Abdul Razak M.S, Dr. Nirmala C R, Chetan B B, Dr. Mohamed Rafi, Dr. Sreenivasa B R published a paper “Online Feature Selection using Pearson Correlation Technique”, 7th IEEE international conference on "Recent Advances and Innovations in Engineering", at NITK Surathkal.

PLACEMENT DETAILS

Sl. No	Name of the Employer	No of Students Placed
1	Wipro Elite	27
2	KPMG	24
3	Inspirage	20
4	TCS NINJA	17
5	Infosys	11
6	SLK Software	7
7	Quest Global	6
8	FAI	6
9	Zensar	6
10	Silver Peak	5
11	Skyscend	5
12	E&Y	4
13	IBM	1
14	Alt Digital	1
15	WorkForce Software	2

THE TECH MESSENGER

Sl. No	Name of the Employer	No of Students Placed
16	Herin Electronics	3
17	Inube	3
18	MAPLE LABS	2
19	Altimetrik	1
20	Rakuten	1
21	Mindtree	1
22	Capgemini	1
23	Cognizant	1
24	Birlasoft	1
25	Sonata	1
26	Wiley Mthree	1
27	Cloudifyops	1
28	Cleo Software	1
29	TATA Elxsi	1
30	Knodtec	1
Total Placed		162

UNIVERSITY WORK carried by Faculty

- Dr. Nirmala C R has appointed as examiner for Ph.D. viva voce and UG practical examination.
- Dr. Chetana Prakash has appointed as examiner for UG practical examination and M.Tech project work viva voce.
- Dr. Pradeep N has appointed as examiner for Ph.D. viva voce and M.Tech project work viva voce.
- Prof. Raghu B.R, Prof. Naresh Patel K M, Prof. Naveen H M, Prof. Naveen K R, Prof. Gangadharappa S appointed as valuator for UG answer scripts and examiner for UG practical examination.
- Prof. Waseem Khan, Prof. A N Jagadeesh, Prof. Preethi B, Prof. Gangamma Hediylad, Prof. Anu C S appointed as examiner for UG practical examination.

Articles



Dr. Nirmala C R
Dean Placement
HOD, CS&E Dept.

ChatGPT

ChatGPT is a natural language processing tool driven by AI technology that allows you to have human-like conversations and much more with the Chabot. The language model can answer questions and assist you with tasks like composing emails, essays, and code.

Google, Wolfram Alpha, and ChatGPT all interact with users via a single line text entry field and provide text results. Google returns search results, a list of web pages and articles that will (hopefully) provide information related to the search queries. Wolfram Alpha generally provides mathematically and data analysis-related answers.

ChatGPT, by contrast, provides a response based on the context and intent behind a user's question. You can't, for example, ask Google to write a story or ask Wolfram Alpha to write a code module, but ChatGPT can do these sorts of things.

Fundamentally, Google's power is the ability to do enormous database lookups and provide a series of matches. Wolfram Alpha's power is the ability to parse data-related questions and perform calculations based on those questions. ChatGPT's power is the ability to parse queries and produce fully-fleshed out answers and results based on most of the world's digitally-accessible text-based information -- at least information that existed as of its time of training prior to 2021.

The two main phases of ChatGPT operation

Let's use Google as an analogy again. When you ask Google to look up something, you probably know that it doesn't -- at the moment you ask -- go out and scour the entire web for answers. Instead, Google searches its database for pages that match that request. Google effectively has two main phases: the spidering and data gathering phase, and the user interaction/lookup phase.

ChatGPT works the same way. The data gathering phase is called pre-training, while the user responsiveness phase is called inference. The magic behind generative AI and the reason it's suddenly exploded is that the way pre-training works has suddenly proven to be enormously scalable.

Pre-training the AI

Artificial Intelligence's pre-train using two principle approaches: supervised and non-supervised. For most AI projects up until the current crop of generative AI systems like ChatGPT, the supervised approach was used.

Supervised pre-training is a process where a model is trained on a labelled dataset, where each input is associated with a corresponding output.

For example, an AI could be trained on a dataset of customer service conversations, where the user's questions and complaints are labelled with the appropriate responses from the customer service representative. To train the AI, questions like "**How can I reset my password?**" would be provided as user input, and answers like "You can reset your password by visiting the account settings page on our website and following the prompts." would be provided as output.

In a supervised training approach, the overall model is trained to learn a mapping function that can map inputs to outputs accurately. This process is often used in supervised learning tasks, such as classification, regression, and sequence labelling.

As you might imagine, there are limits to how this can scale. Human trainers would have to go pretty far in anticipating all the inputs and outputs. Training could take a very long time and be limited in subject matter expertise.

But as we've come to know, ChatGPT has very few limits in subject matter expertise. You can ask it to write a resume for the character Chief Miles O'Brien from Star Trek, have it explain quantum physics, write a piece of code, write a short piece of fiction, and compare the governing styles of former presidents of the United States.

It would be impossible to anticipate all the questions that would ever be asked, so there really is no way that ChatGPT could have been trained with a supervised model. Instead, ChatGPT uses non-supervised pre-training -- and this is the game changer.

Non-supervised pre-training is the process by which a model is trained on data where no specific output is associated with each input. Instead, the model is trained to learn the underlying structure and patterns in the input data without any specific task in mind. This process is often used in unsupervised learning tasks, such as clustering, anomaly detection, and dimensionality reduction. In the context of language modelling, non-supervised pre-training can be used to train a model to understand the syntax and semantics of natural language, so that it can generate coherent and meaningful text in a conversational context.

It's here where ChatGPT's apparently limitless knowledge becomes possible. Because the developers don't need to know the outputs that come from the inputs, all they have to do is dump more and more information into the ChatGPT pre-training mechanism, which is called transformer-base language modelling.

Transformer architecture

The transformer architecture is a type of neural network that is used for processing natural language data. A neural network simulates the way a human brain works by processing information through layers of interconnected nodes. Think of a neural network like a hockey team: each player has a role, but they pass the puck back and forth among players with specific roles, all working together to score the goal.

The transformer architecture processes sequences of words by using "self-attention" to weigh the importance of different words in a sequence when making predictions. Self-attention is similar to the way a reader might look back at a previous sentence or paragraph for the context needed to understand a new word in a book. The transformer looks at all the words in a sequence to understand the context and the relationships between the words.

The transformer is made up of several layers, each with multiple sub-layers. The two main sub-layers are the self-attention layer and the feed forward layer. The self-attention layer computes the importance of each word in the sequence, while the feed forward layer applies non-linear transformations to the input data. These layers help the transformer learn and understand the relationships between the words in a sequence.

During training, the transformer is given input data, such as a sentence, and is asked to make a prediction based on that input. The model is updated based on how well its prediction matches the actual output. Through this process, the transformer learns to understand the context and relationships between words in a sequence, making it a powerful tool for natural language processing tasks such as language translation and text generation.



Abdul Razak M S

Assistant Professor

Computer Science and Engineering Department

Bapuji Institute of Engineering and Technology

Comparison of Database Management Systems (DBMS) and Data Stream Management Systems (DSMS)

1. Database Management Systems (DBMS)

In DBMS the nature of data is non-volatile and random data access is performed using DBMS. It operates on one time queries and gives the exact output for that query. DBMS uses unlimited secondary storage to store the data and also here in DBMS the data update rate is very low. DBMS is used when there is little or no time requirement.

Application of DBMS:

- University records
- Supply Chain Management
- HR Management
- Telecommunication records
- Railway Reservation System

The below query is an example of DBMS query which is a one-time query and gives the exact answer.

```
SELECT Name, Id, City  
FROM Employees  
WHERE City = 'Davanagere'  
ORDER BY Name;
```

The above query is a very simple query which shows Name, Role, City of the company employees whose city belongs to Davanagere and the output/result will be ordered by name of the employees.

2.Data Stream Management Systems (DSMS)

In DSMS the nature of data is volatile data stream and sequential data access is performed using DSMS. It operates on continuous queries and gives the exact/approximate output for that query. DBMS uses limited main memory to store the data and also here in DSMS the data update rate is very high. DSMS is used when there is real time requirement

Application of DSMS:

- Sensor Network
- Network Traffic Analysis
- Financial Tickers
- Online Auctions
- Transaction Log Analysis

The below query is an example of DSMS query which is a continuous query and gives the exact/approximate answer.

```
SELECT Stream
Rowtime
MIN (Temp) Over W1 as Wmin_temp,
MAX (Temp) Over W1 as Wmax_temp,
AVG (Temp) Over W1 as Wavg_temp,
FROM Wheatherstream
Window W1 as (RANGE INTERVAL '2' SECOND PRECEDING);
```

The above query aggregates a sensor stream from a weather monitoring system. Then it aggregates the collected minimum, maximum and average temperature values. Window clause creates a window of 2 seconds duration (refers to delay, which can be changed) showing a stream of incrementally updated results with zero result latency.

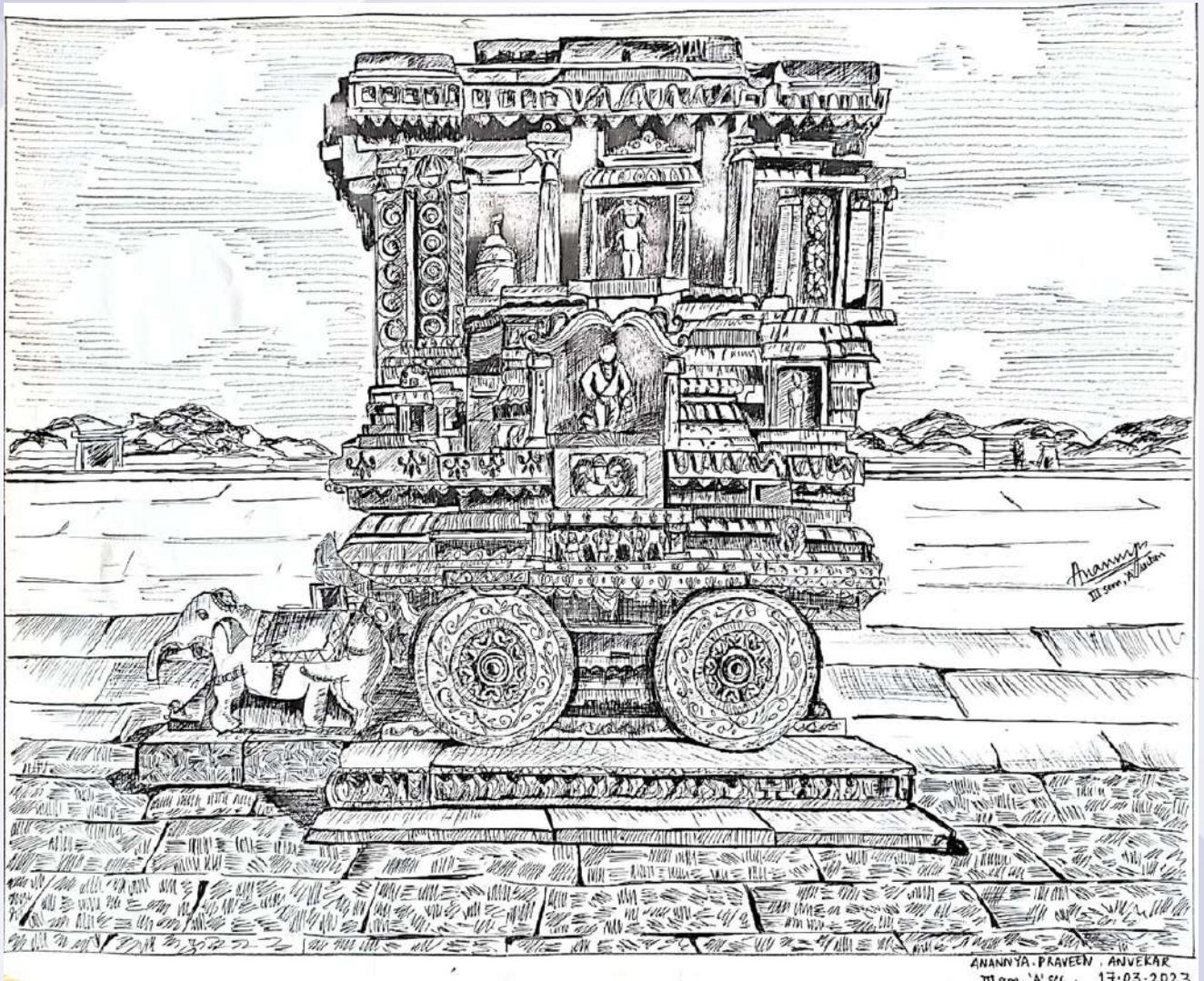
THE TECH MESSENGER

S.No.	DBMS	DSMS
1	DBMS refers to Data Base Management System.	DSMS refers to Data Stream Management System.
2	Data Base Management System deals with persistent data.	Data Stream Management System deals with stream data.
3	In DBMS random data access takes place.	In DSMS sequential data access takes place.
4	It is based on Query Driven processing model i.e called pull based model.	It is based on Data Driven processing model i.e called push based model.
5	In DBMS query plan is optimized at beginning/fixed.	DSMS is based on adaptive query plans.
6	In DBMS query plan is optimized at beginning/fixed.	The data update rates in DSMS is relatively high.
7	In DBMS the queries are one time queries.	But in DSMS the queries are continuous.
8	In DBMS the query gives the exact answer.	In DSMS the query gives the exact/approximate answer.
9	DBMS provides no real time service.	DSMS provides real time service.
10	DBMS uses unbounded disk store means unlimited secondary storage.	DSMS uses bounded main memory means limited main memory.

Art Gallery







ANANNYA . PRAVEEN . ANVEKAR
Mgm, A sec , 17-03-2023