VIT Vidyalankar Institute of Technology
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An Autonomous Institute Affiliated to University of Mumbai

BYTES

DEPARTMENT OF COMPUTER ENGINEERING

July 2023 • ISSUE 04 • VOLUME 14

Vision of the Department

To be recognized as a Centre of Excellence in the field of Computer Engineering where learners are nurtured in scholarly environment to evolve into competent Computer Engineering professionals to benefit society

Mission of the Department

1. Evolve a curriculum which emphasizes on strong engineering fundamentals with the flexibility to choose advanced courses of interest and gain exposure to tools and techniques in Computer Engineering.
2. Encourage a teaching-learning process in which highly competent faculty share a symbiotic association with the institutes of repute.
3. Facilitate creation and dissemination of knowledge through a digitally-enabled learning environment.
4. Develop academic and infrastructural facilities with modern equipment and other learning resources and encourage reciprocal sharing with other institutes through networking.
5. Establish a centre of excellence to enhance academia – industry partnership and work on collaborative projects.

Programme Educational Objectives (PEO)

1. To enable the pursuit of knowledge in the field of Computer Engineering and contribute to the profession and employability of the students.
2. To engage in research, generate the employment through entrepreneurship and work effectively in multidisciplinary environment.
3. To understand the human, social, ethical and environmental context of their profession and contribute positively to the needs of individuals and society at large.

WHAT'S INSIDE

CSI Event: Crafting your Sound Achievements
Department Staff
- DR. RAVINDRA SANGLE
- PROF. SNEHAL ANDHARE

Student Talk: Aditi Kakade
Quantum Computing: An Edge over Speed
Alumnus Talk: Atharva Deshpande
Project Competition Winner
Excelsior 2K23 by KEM
Departmental Updates
CSI Flagship: Enthusia
Student Article: Renuka Patwari

PROF. DR. SACHIN BOJEWAR

HEAD OF DEPARTMENT, COMPUTER ENGINEERING

As we come to the end of another semester in our journey through the fascinating field of computer engineering, I wanted to take a moment to reflect on our collective achievements and offer a few words of encouragement. Throughout this semester, we have delved into a myriad of complex topics, ranging from algorithms and data structures to digital systems and software engineering. You have navigated through intricate problem sets, coding challenges, and design projects with unwavering determination. Your ability to think critically and creatively has shone brightly, and it is this very skill set that will continue to set you apart as computer engineers.

I am excited to see what the future holds for our department, and I look forward to working with each one of you to achieve our goals and to make a positive impact on society.

> If the government regulates against use of drones or stem cells or artificial intelligence, all that means is that the work and the research leave the borders of that country and go someplace else.
> —Peter Diamandis

CSI Event: Crafting your Sound

DATE:19th April 2023

The Crafting your Sound event was a music production session held on the 19th of April 2023, in the VIT Auditorium from 4-6 p.m. It was a collaborative event between CSI VIT and Apaches VIT, the college band. The event was conducted by Neetish Dhavgaye and Utkarsh Karmungikar. Neetish is a pianist and a sound engineer, and Utkarsh is a trained classical singer with a great understanding of music. The session commenced with Utkarsh asking the audience general questions about their connection with music, how much they listened to it throughout the day and other such questions.

Neetish then proceeded to explain the various technical job posts in the music industry, such as Chief Sound Engineer, Sound Recorder etc. He also explained other production concepts such as DAW files, MIDI, Arrangement & Session Views. Later, they delved into music theory, going over various concepts of Western and Indian classical music like notes, frequencies, scales, chords, harmonies, beats, raags, taal.

Achievements in the Department

Congratulations Dr. Kavita Shirsat on completion of her PhD in June 2023 from VJTI, Mumbai

Delighted to share that our students of Final year Siddhesh B, Kaushal J, Kaustabh I, Miheer M and the mentor Prof. Swapnil Sonawane had participated at a conference named ICRAET Bengaluru, India in May 2023. They bagged Best Paper Award for their research paper Exploring the Efficacy of a Paraphrasing Model Based on T5 and BART Architecture for Textual Paraphrase Generation.

Department Staff

DR. RAVINDRA SANGLE
ASSISTANT PROFESSOR

EDUCATION QUALIFICATION:
PhD

WORKING EXPERIENCE:
17 YEARS

AREA OF SPECIALIZATION:
DISCRETE STRUCTURES
AUTOMATA THEORY
SOFTWARE ENGINEERING
COMPILERS

PROF. SNEHAL ANDHARE
ASSISTANT PROFESSOR

EDUCATION QUALIFICATION:
PURSUING PhD

WORKING EXPERIENCE:
10 YEARS

AREA OF SPECIALIZATION:
MACHINE LEARNING
DEEP LEARNING
SYSTEM SOFTWARE
IMAGE PROCESSING

> Your work is going to fill a large part of your life, and the only way to be truly satisfied is to do what you believe is great work. And the only way to do great work is to love what you do.- Steve Jobs

Student's Speak

Aditi Kakade

"From uncut diamond to polished brilliance, Vidyalankar Institute of Technology refines and reveals the true potential within."

Aditi Kakade SE-B

I am proud to be a part of this esteemed college. Two years have passed by with great professors, faculty members, batchmates and the magnificent institute. The professors at VIT have built such a great rapport with the students that we can easily depend on them for our academic and personal needs, making them extremely approachable.

Morally, socially, and academically this college has enhanced the life of each one of us. Our goals and ambitions have gained clarity through the invaluable direction and mentorship provided by our venerated faculty and peers.

The introduction of committees such as CSI, GDSC, CESA and many more has not only aided but also ignited within me an insatiable thirst for practical knowledge. After my entry into VIT, I have undergone a holistic metamorphosis. This has brought about remarkable personal growth and developed a steadfast resilience that will undoubtedly prove beneficial for my future endeavors. I am profoundly grateful to my mentor Mr. Amit Nerurkar whose guidance has not only facilitated a smoother journey for me but also played a pivotal role in shaping my career. This institute focuses on breaking through new pathways and adapting a modern outlook without discarding the conventional traditional methods of teaching. As I prepare to embark on the next phase of my academic and professional journey, I am confident that the foundation laid by VIT will continue to guide and inspire me.

Thank you once again VIT for molding me into a capable and self-assured individual, primed to create a meaningful difference in the world.

Quantum Computing: An Edge over Speed

Since the early 20th century, when the atom was first examined, quantum physics has challenged conventional logic. It has been discovered that atoms deviate from the traditional laws of physics. Quantum particles possess extraordinary properties such as the ability to travel forward or backward in time, exist simultaneously in two different locations, and even engage in "teleportation." These peculiar behaviours are what quantum computers seek to harness for their benefit. Traditional computers operate by manipulating binary digits, namely ones and zeroes, to perform calculations. However, quantum computers employ quantum bits, known as qubits. Similar to classical computers, quantum computers also utilize ones and zeroes, but qubits possess an additional state called "superposition," allowing them to represent both one and zero simultaneously. Instead of sequentially analysing individual ones or zeroes, superposition enables two qubits in superposition to represent four potential scenarios concurrently. Consequently, the time required to process a given dataset is significantly reduced. Given the vast amounts of data generated daily, we are in dire need of increased computational power to effectively analyse and derive meaning from it. This is where quantum computers come to the rescue. Reference: https://bernardmarr.com/15-things-everyone-should-know-about-quantum-computing/

> The only person you are destined to become is the person you decide to be. –Ralph Waldo Emerson

Know an Alumnus Atharva Deshpande

Atharva Deshpande

Firstly, let me start by saying that VIT is an outstanding institution located in Mumbai, India. As a student at VIT, I had access to a world-class education, state-of-the-art facilities, and an incredibly supportive community. The faculty at VIT are passionate, knowledgeable, and always willing to go above and beyond to help their students succeed. They are not just teachers but mentors, who truly care about their students' growth and development.

One of the things that makes VIT stand out is its computer department. It is considered one of the best departments in Mumbai, attracting some of the brightest minds in the city. As a student in the computer department, I was exposed to a wealth of knowledge and practical skills that have been invaluable in my career.

Apart from academic excellence, VIT also provides ample opportunities for students to develop their interpersonal and life skills. The campus is buzzing with energy and enthusiasm, with fests and events happening all year round. The campus boasts advanced laboratories, well-equipped classrooms, and an extensive library that provides students with all the resources they need to excel academically.

During my time at VIT, I had the pleasure of leading two prominent teams, CSI VIT and TEDxVIT. These experiences were undoubtedly the highlights of my college life. They helped me develop my interests in a certain niche, which I now pursue as a career. Moreover, they equipped me with organizational and financial skills at a young age, which have proven to be extremely valuable in my professional life.

Another aspect that sets VIT apart is the supportive and collaborative culture on campus. I found myself surrounded by like-minded individuals who were not only focused on their academic and professional goals but also committed to giving back to society. This culture of giving and collaboration is deeply ingrained in the VIT community, and it is one of the reasons why I am proud to be a VIT alumnus.

In conclusion, studying at VIT was an incredibly rewarding experience for me. It provided me with the knowledge, skills, and opportunities I needed to succeed in my career and personal life. I would highly recommend VIT to anyone looking for a world-class education in India.

Project Competition Winner

Neeraj S, Devang G, Aniket K under the guidance of Prof. Divya Surve secured first prize in National Level Project competition “Electrowiz 2023” held at DMCE in April 2023.

> One cannot constantly be motivated by extrinsic factors. At some point, the driving force has to come from within. - Ratan Tata

Excelsior 2K23 by KEM

DATE:01st May 2023

Team championship event which I played wherein I represented college, and I was playing this event with my badminton team. This team event taught me a lot as an individual and one very important thing that even if your team is the strongest of all the teams, you shouldn't be overconfident, or you shouldn't underestimate any of the teams. This event taught me how to use the strengths of your team so that every person can get a chance to participate in every match. When you play as a team, you get to learn how to play alongside players who are equivalent or better than us. This added a lot to my experience, and it also showed me how to be a good teammate.

I got a trophy, a certificate and a medal for the same. As it was a team championship event, the trophy was fondly called 'A Rolling Trophy' by everyone. The trophy also has 5 sections on top of it, which represents 5 members of the team and conveys a message that every team member is equally important for any team. In a nutshell, 01/05/2023 was the day where team spirit was celebrated, and the spirit of the game won. **Shivani Herlekar TE-B**

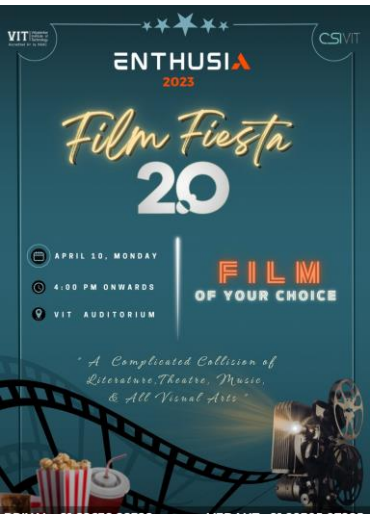
Departmental Update

1. .Prof. Suja Jayachandran was invited as a Reviewer in ICECCME 2023(International Conference on Electrical, Computer, Communications and Mechatronics Engineering 2023, Tenerife, Canary Islands, Spain) in June 2023.
2. Prof. Suja Jayachandran Presented Paper on Analyzing Student Engagement to Enhance the Online Teaching-Learning Environment in 2nd International Conference on Best Innovative Teaching Strategies 2023 organized by BITS, Pilani.
3. Prof. Suja Jayachandran was invited as a Speaker in 5-Days Faculty Development Program on Web Database Application Development Workshop organized by Department of Information Technology ,VIT in June 2023.
4. Prof. Pankaj Vanwari was invited as a Speaker in 5-Days Faculty Development Program on Web Database Application Development Workshop organized by Department of Information Technology ,VIT in June 2023.
5. Nimish S, Heramba L, Anurag B, Shraddha S. presented paper Optimizing Issue Tracking Systems using Deep Learning-based Issue Classification in IEEE conference under the guidance of Prof. Amit K. Nerurkar in PCEMS 2023 April 2023.
6. Bhavesh D, Chaitanya S., Pratik B, Devish G presented paper Stratification of Hacker Forums and Predicting Cyber Assaults for Proactive Cyber Threat Intelligence in IEEE conference under the guidance of Prof. Amit K. Nerurkar in PCEMS 2023 April 2023.
7. Deep S, Riyal, Shamiksha P, Rutvik N presented paper Intelligent Process Automation for Indian Car Sales Forecasting Using Machine Learning Time Series Algorithms in Springer conference under the guidance of Prof. Amit K. Nerurkar in ICTIS 2023 April 2023.
8. BoS meeting was conducted with all members in June 2023.
9. DAB meeting was conducted with all members in April 2023.
10. Our alumni Ishita Tambat (2022) got admission at Stanford University for MS in Management Science and Engineering

"Arise, awake, and stop not until the goal is reached."
- Swami Vivekananda

CSI Flagship: Entusia

DATE:10th April 2023 to 18th April 2023



Film Fiesta CSI, VIT Chapter 2022-23 successfully organized Film Fiesta 2.0, a highly anticipated offline movie screening event. The second instalment of the CSI-VIT film fiesta series took place at this event for the film of Top Gun: Maverick. The movie gave some meaningful messages such as:

All things are possible with the right training, knowledge and discipline, Try to learn from your past mistakes. Also, some values like forgiveness, redemption, heroism, gender equality, self-sacrifice and teamwork. Fans of the original series will enjoy the film's thrilling action sequences and nostalgic trip.

Bug Bounty The event's main goal was to solve website bugs using various programming languages. Individuals competed in teams of two, with 12-14 individuals, the bulk of them were from the second-year computing branch. The languages used to solve the issue statements were HTML, CSS, and JavaScript, and the cash rewards for the winners were Rs 3000. To participate in the event, participants were given a user login that was configured on their system login.

Heist and Escape It was a challenging competition, and the participants were tasked to decode the clues on morse codes and braille binary codes. On solving each clue, participants were given a puzzle piece. Several such puzzle pieces were collected after solving the clues and were joined to make a complete poster puzzle. The team managing to discover all the clues and submitting the entire puzzle first was declared as the winner of the event.

Vetran's Voice Major Prajakta Desai shared details about her life challenges, struggles, fears, and stages as she pursued her career. She stated that she attended St. Agnes' High School in Byculla, Mumbai, and Ramnarain Ruia College in Matunga, Mumbai. She also completed three years of NCC Service during her schooling and explained the significance of the NCC (National Cadet Corps).

She emphasized the importance of NCC instilling discipline, improving uniform dress sense, and assisting in balancing life between NCC and academics.

Conversations with Impact The guest speaker for the session was Mr. Vinit Patil, founder of PatilKaki. He was a participant on Shark Tank India Season 2, where he managed to get funding for his startup from Anupam Mittal and Peyush Bansal. He took the stage to speak about the various factors that go on the in the background of a startup.

Among US CSI VIT chapter 2022-2023 organized the real life among us, replica of online among us game with some modification. The event has 2 rounds each of 15 minutes. In each round ,10 individual compete against each others. There are total 2 imposters among 10 crew mates.

"The first step is to establish that something is possible; then probability will occur." - Elon Musk

Student Article: AutoML - The Future of Machine Learning by Renuka Patwari

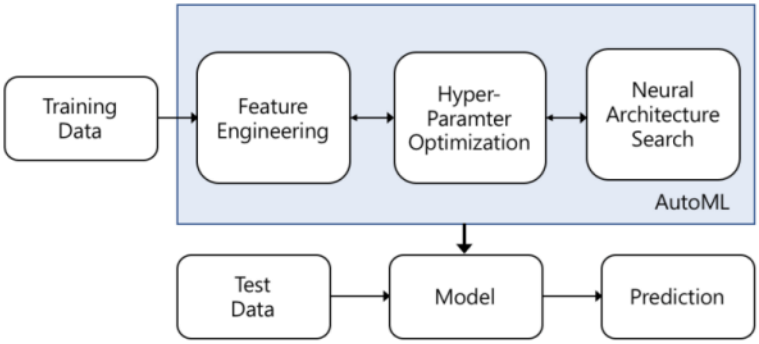
The exponential growth of data in recent years has rendered traditional algorithms inadequate for effective analysis. AutoML (Automated Machine Learning) has emerged as a transformative technology, automating the model development process and democratizing machine learning expertise.

Renowned AI expert, Andrew Ng, acknowledges the potential of AutoML by stating,

"If a typical person can do a task with less than one second of thought, we can probably automate it using AI either now or in the near future."

AutoML tools have gained prominence, with notable offerings such as Google Cloud's AutoML. This suite of tools includes AutoML Vision for image recognition and AutoML Tables for tabular data analysis. Other prominent solutions include H2O.ai's Driverless AI, which automates feature engineering
and model building, and DataRobot, an end-to-end AutoML platform that facilitates automated model selection and deployment.

Renuka Patwari
TE-A



Model of AutoML

A key component of AutoML is Neural Architecture Search (NAS), an algorithmic approach that automates the discovery of optimal neural network architectures. NAS algorithms explore a search space of potential neural network architectures to identify models that achieve high performance. The searchspace encompasses architectural chyper parameters, while the search strategy determines how the algorithm explores the space. NAS hoices, such as layer configurations and enables the discovery of optimal architectures, reducing the reliance on manual design and human expertise. AutoML offers several advantages, including time savings and improved model performance. However, Dr. Cynthia Rudin, a professor at Duke University, cautions that a balance between automation and interpretability is crucial. Ensuring explainable and trustworthy models is essential. Challenges still exist in interpretability and handling complex datasets. Nevertheless, organizations can leverage popular AutoML tools and expert insights to unlock new opportunities and drive innovation in machine learning.

UPCOMING EVENTS

- TEDxVIT 2023 WILL BE ORGAINIZED IN JANUARY 2024
- CSI WILL HOST ITS FLAGSHIP EVENT ETHUSIA IN August 2023
- CESA WILL HOST ITS FLAGSHIP EVENT PLETHORA IN August 2023
- DEPARTMENT WILL HOST 1 WEEK WORKSHOP ON IOT IN COLLABORATION WITH GROK LEARNING IN July 2023.

> Engineering students are like diamonds in the rough, continuously refining their skills and shaping their brilliance to leave an indelible mark on the world.

THE

EDITORIAL TEAM

PROF. AMIT K. NERURKAR

Chief Editor