



### 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.

## PROF. DR. SACHIN BOJEWAR

HEAD OF DEPARTMENT, COMPUTER ENGINEERING

Hello Everyone,

Technology has become one's life companion. Current trend is clinching to a computer or phone in disguise as Smartphone with various features. Slim designs are making human lives simpler, costlier and more tempted in simplifying our lives with fun and entertainment.

For Enhancing the coding skills department have started a new committee for the students "CodeGym" where the students are given the programming challenge and encouraged to solve it by giving proper direction. Further department is also setting an IOT lab in collaboration with GROK learning to encourage all the interested students to build a IOT solution for automating the various scenarios.

While one is basking on the glory of achievements, the reality of current job market should not be lost sight of. Becoming employable is under the control of each student whereas job market is not. Becoming employable requires the right balance of head, hand and heart. The only way to acquire proficiency in three ability areas is to engage oneself in all activities that the department faculty members have designed.

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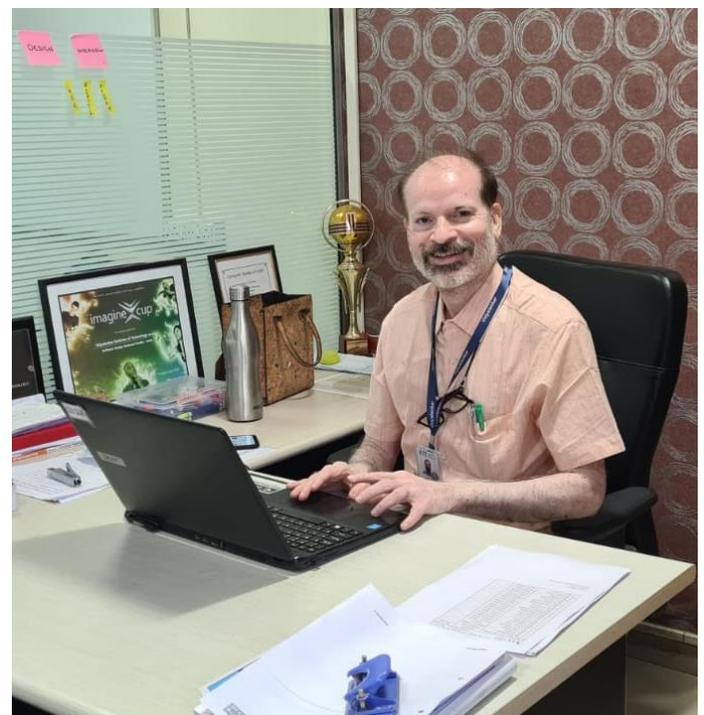
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“Patents need inventors more than inventors need patents”

— Kalyan C. Kankanala



## Workshop on IPR Patents, Designs by CSI-VIT and CESA-VIT



DATE: January 12, 2022  
SPEAKER: Dr. Pankaj Borkar

The speaker of the event was Dr. Pankaj Borkar, Dy. Controller of Patents & Designs, GL-Mech. IPO Mumbai and RGNIIPM, Nagpur.

Department of Computer Engineering with CSI and CESA presents

### "Free Online workshop on IPR- Patents, Designs"

in collaboration with RGNIIPM Nagpur, IPR Training Institute.



**Dr Pankaj Borkar**  
Dy. Controller of Patents and Design

Dr. Borkar initiated the session by informing about the various departmental offices located in Mumbai & India which was necessary to know for filing services and helped the participants know which office will come to their aid based on the requirements.

The fundamental patent filing & examination charges were mentioned, and the monetary bifurcation was elucidated.

As a matter of concern, Dr. Borkar gave a comparative analysis between India and other countries and threw light on the drastic difference in the number of patents filed in India in comparison to other countries.

The basic definition of Intellectual Property (IP) was stated, and its significance was mentioned. The necessity of having a patent secured under one's name was stressed and how it is necessary in building a resume and in other walks of life was mentioned. The importance of a patent was stated and how it helps in the various sectors were specified

**ON 12TH JANUARY 2022 |**  
**WEDNESDAY | AT 4 TO 5:30 PM |**  
**PLATFORM: ZOOM**



Register here!

**MEETING ID: 989 6124 3708**  
**PASSCODE: 739979**

**CERTIFICATE WILL BE AWARDED TO ALL THE PARTICIPANTS WHO ATTEND THE WORKSHOP.**

For Queries contact  
Prof. Sneha Annappanavar 9029630727 Prof. Amit Aylani 9098313400

## Department Staff

**DR. SACHIN BOJEWAR**  
PROFESSOR

**PROF. DIVYA SURVE**  
ASSISTANT PROFESSOR



**EDUCATION QUALIFICATION:**  
PhD

**WORKING EXPERIENCE:**  
31 YEARS

**AREA OF SPECIALIZATION:**  
UI/UX  
SOFTWARE ENGINEERING

**EDUCATION QUALIFICATION:**  
PURSUING PhD

**WORKING EXPERIENCE:**  
8 YEARS

**AREA OF SPECIALIZATION:**  
IMAGE PROCESSING  
CLOUD COMPUTING



“Tell me and I forget. Teach me and I remember. Involve me and I learn.”  
 - Benjamin Franklin

## Student's Speak

Ritika Lath

My name is Ritika Lath and I am a 3rd-year student studying computer engineering. I am highly obliged to be given this opportunity to share my experience and express my gratitude towards the computer department. Looking back to the year 2019 when Covid 19 cases were increasing and the government had to impose a lockdown, everything came to a standstill right from schools, colleges, cinema halls to multinational companies. This led to huge losses for students as well as industry professionals. But as we know there is a solution for everything, so people started shifting towards the online mode. And so did our college. There was a smooth transition from offline to online mode. The computer department was very supportive and helped students fit into the new environment, eventually, everyone settled. Even though the mode of teaching was online there was a strong bond between the professors and the students.



Every professor here in the computer department has a unique way of approaching the subject which makes the learning process fun and easy. But I was most intrigued by the teaching style of Professor Swapnil Sonawane sir who taught us Java programming. Initially, I was afraid of JAVA but he made it bearable, easier, and interesting so I would like to thank him for that. The professors provided us with digital notes, books, and videos for reference. These resources made our life easy. Even after all this if at all we had any doubts our professors were just a call away. Since everything was in the online mode, we were missing the industry visits so in order to cater to it our department organized online guest lectures by various industry experts needed for us to be industry-ready. As we know in the real-world emphasis is put on the overall personality and not just academic excellence so our professors encourage students to take up leadership roles and participate in extra and co-curricular activities along with technical activities like webinars, workshops, hackathons, etc. To meet these requirements our college has many student bodies like the student council, and many student chapters and societies like CESA, CSI, IEEE to name a few. I am the general secretary of CESA and it's been an amazing experience organizing webinars on trending topics in the field of science and technology. I have learned many new things like managing a team and coordinating with people which has helped me improve my personality. The past two years have been a roller coaster ride not just for students but for teachers as well nonetheless it has created memories for life.

## Autonomy

Vidyalankar Institute has been granted autonomy from UGC for 10 years from coming academic year 2022-23.





Education is the passport to the future, for tomorrow belongs to those who prepare for it today. —Malcolm X



## Know an Alumnus

Janhavi Paste

**“Enjoy the little things, for one day you may look back and realize they were the big things”**

**- Robert Brault**

This is Janhavi Ashish Paste, graduated from Vidyalankar Institute of Technology (Affiliated with the University of Mumbai) in 2020 with a Bachelor of Engineering in Computer Engineering.

Life at Vidyalankar has always been full of learning and fun. In 4 years, I have developed an array of qualities that are imperative to be a successful engineer which was only possible because of all the faculty members of Computer Engineering Department. Innovative teaching techniques adopted by the faculty members made the course more interesting. They encouraged us to learn lessons outside the classroom and reproduce it during the lectures. This has tremendously helped us to improve our level of understanding. All faculty members were extremely supportive and were only concerned about our welfare. When things were tough professors like Mr. Rugved Deolekar, Mr. Amit Nerurkar & Ms. Mohini Chaudhari believed in us and always encouraged us to do our best. They insisted us to take part in extracurricular and co-curricular activities of our Department. CSI, Computer Engineering Students' Association, a student body responsible for organizing educational workshops and seminars introduced us to a whole new world of current booming technologies. After being a part of CSI as a Publicity head, I found myself able to communicate, innovate, and collaborate in ways that enabled me to build a successful communications. This was the most crucial part of my entire curriculum, which has helped me grow as individual.



Another initiative taken from our Computer department was the – “TEDx-VIT” event. Everyone’s efforts right from handling responsibilities like Sponsorships, publicity, hospitality, curations up to managing the guests' speakers the event was of a great success.

And the most vital part of the journey was the “Final year Engineering Project”. Working with Professor Mr. Amit Nerurkar was an amazing experience all together. His expertise and enthusiasm helped us a lot in exploring new concepts and implementing the same. He supported us in every possible way.

Being a part of the “2020-Covid 19 Batch”, we were the first batch to witness an “Online End Semester Examination”. This period was a bit challenging for every one of us but even in this tough time the professors of our department shared all the required study materials, arranged online lectures, brush up sessions to make us ready to appear the examinations.

I would like to thank and express my gratitude towards every professor of Computer Department for facilitating such a positive learning environment which helped me grow as an independent and responsible individual. I will always be proud of being a part of VIT’s Computer Department and will forever be grateful!

And as it is rightly said – “Once a VITian, always a VITian”!

“ Knowledge is not what you find after a Google search, but what you create for Google to index. — Mohiuddin Mohammad ”

## Webinar on GSoC by CESA



DATE: February 11<sup>th</sup>, 2022.  
SPEAKER: Mr. Yash Pandey

CESA organized a webinar on GSoC. The speaker of this event, Yash Pandey is a student of IIIT Ranchi. He was a part of GSoC 2021 and has worked with Casbin and has provided Advanced Authorization solutions in cpp. He began by explaining open-source development and explained how various opensource software work. Later he talked about open-source programs by google. He explained what GSoC is and how it works. He also talked about the benefits and future scope of contributing towards open-source software. He walked the students through his journey from 2019 to 2021 talking about how he began his engineering journey and how he got into open-source development. He also shared some good resources and materials which would help the students. Being available for free, open-source development is always on demand for the individual users who use such applications for their own projects. Additionally, it is also preferred by the small organization to complete their projects at no software cost, and due to this, it has a very good scope in future. It has always been in the limelight in terms of demand and will sustain high demand. On the other hand, there are various perks of getting into GSoC which include gaining valuable experience, stipend, working with professionals, and developing your skill.

## Departmental Updates

1. Prof. Amit K. Nerurkar presented paper in Emerging Technologies in Data Mining and Information Security (IEMIS 2022) on 23-25 February 2022
2. Prof. Swapnil Sonawane presented paper in Emerging Technologies in Data Mining and Information Security (IEMIS 2022) on 23-25 February 2022
3. Department hosted workshop on IOT in collaboration with Grok Learning on March 11th, 2022

## Roles in Data Science Projects

**Skills Required to Become a Data Scientist:** Education: master's degrees, and PhDs, In-depth knowledge of R, Python coding, Hadoop platform, SQL database/coding, Working with unstructured data.

**Skills Required to Become a Big Data Specialist:** Analytical skills, Creativity, Computer science, Business skills

**Skills Required to Become a Data Analyst:** Programming skills: Statistical skills and mathematics, Machine learning skills, Data wrangling skills, Communication and data visualization skills, Data intuition



The Internet of Things is not a concept; it is a network, the true technology-enabled Network of all networks. — Edewede Oriwoh



## Ideate and Build IoT and 3d Printing Project by CSI-VIT and CESA-VIT



DATE: March 11<sup>th</sup>, 2022

SPEAKER: Mr. Nitin Komawar

The department of Computer Engineering, CSI-VIT and CESA-VIT organized a workshop called 'Ideate and Build IoT and 3d Printing project' to allow students to become better acquainted with industrial level IoT projects, their applications in different domains and 3d printing. This event was the first one organized by the committees in an offline mode.

The speaker of the event was Mr. Nitin Komawar.

Mr. Nitin Komawar is the founder of Grockstem, an Ed-tech platform designed to help students explore Industry-level projects to enhance their skills. He launched his own IoT company in the US in 2007

The webinar began with the speaker introducing himself and the subject. The basics were explained with innovative examples.

This was followed by a demonstration of the software used in parallel to the hardware components. Several projects including automated light bulbs, smart agriculture, and so on were demonstrated. Along with these he and his team also demonstrated an industry-level project which was used to control light and fans and collect humidity and temperature data of the room.

The speaker shared his experience and interacted with students who were eager to know about IoT. He also talked about various startups of IoT from different parts of India.

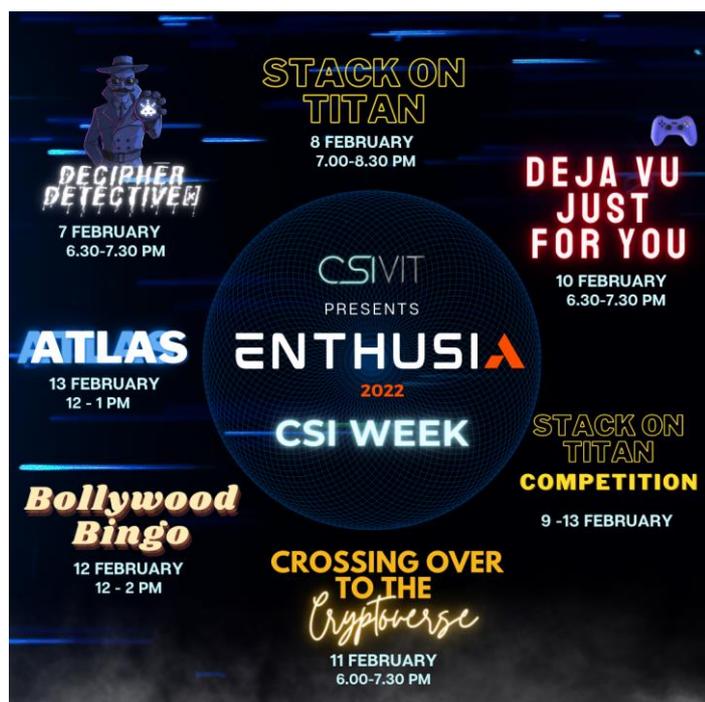
## Enthusia: Flagship event of CSI-VIT

DATE: February 07, 2022 to February 13, 2022

SPEAKER: CSI-VIT team members

CSI committee of Department of Computer Engineering hosted a weeklong competitions along with some fun events and webinars, bringing together innovative minds. Following are the events and competitions conducted by CSI-VIT during the CSI week:

1. 7th February- Decipher Detectives
2. 8th February- Stack on Titan
3. 9th February- Stack on Titan Competition
4. 10th February- Deja Vu Just For You
5. 11th February- Crossing over to the Cryptoverse
6. 12 February- Bollywood Bingo
7. 13th February- Atlas
8. 9th Feb – 13th Feb Stack on Titan Competition on Game Development



“

Without big data analytics, companies are blind and deaf, wandering out onto the web like deer on a freeway-- Geoffrey Moore

”

## Student Article: Extracting Meaningful OCR data using Document Structure Detection.by Rajeev Singh

Documents of human life, the written document was found about 900 years ago at The Missal of Silos. As the world is moving towards automation of tasks from multiple domains, machine learning provides the end consumer with a smart prediction from a computer which not only decreases human involvement but also is very much accurate. Machine Learning is being used in various domains ranging from Aerospace to Medical Science to Autonomous Vehicles. Machine Learning tries to create a pattern from the historical data and tries to predict the goal value. Global Machine learning was valued at 8 Billion US dollars in 2021 itself and it is anticipated to reach 100 Billion \$ by 2027.

Document images(often called as Soft Copy) are often generated from physical documents by digitization using scanners or digital cameras. Many documents, such as newspapers, magazines, and brochures, contain very complex layouts due to the placement of figures, titles, captions, complex backgrounds, artistic text formatting, etc. A human reader uses a variety of additional cues such as context, conventions, and information about language/script, along with a complex reasoning process to decipher the contents of a document. Machine Learning can be used to extract data from these documents and doing an analysis of the data extracted can be very helpful. Optical Character Recognition also known as OCR is the tool that is used to extract textual data from images.

Basically, OCR uses Feature Detection and Pattern Recognition and tries to recognize every character consisting in the document image to the closest character. Feature Detection tries to find patterns in various characters like a straight line with a dot at the top would be i (small I) and a character with the dot at the bottom would be ! (exclamation sign). An application like Google Lens uses a robust OCR engine that can extract data from documents not only in multiple fonts but also in multiple languages. The seemingly robust system fails when the textual image contains tables and complex text. However, this issue is solved using Document Structure Detection. Document structure detection is the process of assigning the logical labels to physical regions identified during layout analysis. The logical labels include title, abstract, sub-title, paragraph, sentence, words, header, footer, caption, page number, etc. Companies like Adobe, Microsoft are using this concept in their various applications like Microsoft Excel, Adobe Scanner, and many more. One can use any Object Detection Algorithms starting from basic ones like YOLO(You only Look One), RCNN by training them on the relevant, to models specifically created for this goal like Layout Parser. One can use these models and can integrate them with various OCR engines like Tesseract and EasyOCR to not only extract the text from the images but also to extract the data in the same format as it was in the original document



**Rajeev Singh**  
**TE-B**

### NBA Visit

NBA expert team visited the department of computer engineering for accreditation purpose for 3 days from March 25, 2022, to March 27, 2022.



## UPCOMING EVENTS

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- CSI WILL HOST A NATIONAL CONFERENCE CYBERFRAT IN JUNE 2022
- DEPARTMENT WILL CONDUCT AUDIT COURSE ON IOT IN JUNE 2022
- SETTING UP IOT LAB IN COLLABORATION WITH GROK LEARNING IN JUNE 2022
- VERVE 2022 WILL BE HOSTED IN APRIL 2022

“ Coding is today's language of creativity. All our children deserve a chance to become creators instead consumers of computer science.  
-Maria Klawe ”

THE  
**EDITORIAL TEAM**

PROF. AMIT K. NERURKAR  
Chief Editor