



TECHNOCRAT

Departmental Newsletter

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ABOUT DEPARTMENT

- The Department of Computer Engineering started in year 2004. Department has modern computing amenities equipped with the latest tools and technologies. The department has strong collaboration with many research organizations and leading for academic and research purpose. The department emphasizes on effective teaching learning process including project based learning using modern tools and technologies.
- This is an exciting period for Computer Engineering profession as the rapidly changing technology creates many opportunities and challenges. Department of Computer Engineering is prepared to meet the challenges and is playing a leadership role in shaping the education of the 21st century by providing unique educational and research opportunities in the forefront of Computer Engineering.

VISION

• To produce competent technical manpower in Computer Engineering for fulfilling needs of industry and society.

MISSION

- 1. To impart need based technical education in Computer Engineering.
- 2. To modernize departmental laboratories and facilities.
- 3. To train faculty and staff, to meet challenges in socio-technical environment
- 4. To inculcate values and ethics among students.

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Program Educational Objectives

- **PEO1:** Provide socially responsible, environment friendly broad-based solutions to Computer engineering related broad-based problems adapting professional ethics.
- **PEO2**: Adapt state-of-the-art Computer engineering broad-based technologies to work in multidisciplinary work environments.
- **PEO3:** Solve broad-based problems individually and as a team member communicating effectively in the world of work.

Program Outcomes (POs)

PO1: Basic and Discipline specific knowledge: Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the Computer engineering problems.

PO2: Problem analysis: Identify and analyzes well-defined computer engineering problems using codified standard methods.

PO3: Design/ development of solutions: Design solutions for well-defined computer engineering technical problems and assist with the design of systems components or processes to meet specified needs

PO4: Engineering Tools, Experimentation and Testing: Apply modern computer engineering tools and appropriate technique to conduct standard tests and measurements.

PO5: Engineering practices for society, sustainability, and environment: Apply appropriate computer engineering technology in context of society, sustainability, environment, and ethical practices.

PO6: Project Management: Use computer engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.

PO7:_Life-long learning: Ability to analyse individual needs and engage in updating in the context of technological changes.

Program Specific Outcomes

PSO1: Computer software and hardware usage: Use state-of-art technologies of computer software and hardware.

PSO2: Computer engineering Maintenance: Maintain state-of-the-art computer engineering systems and peripherals.

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COVER STORY

Getting Started with Computer Vision

The measurable benefits of lower costs, increased efficiency and reduced downtime mean there's significant Return on Investment (ROI) to be captured through computer vision. And thanks to the growing democratization of AI, intelligent edge and cloud solutions, these benefits are

Increasingly within reach. But while the hardware, and even many off-the-shelf CV architectures are readily available, there are a few key points to consider before kicking off your pilot project. Engage the experts.

First and foremost, you'll need to make sure you have the knowledge and resources to build, implement and operationalize a highly accurate CV system at scale.

Computer vision is a unique field that requires a specialized skill set. If your organization already employs a team of data scientists, this is a great starting point, but unless your team has successfully implemented a CV model in the past, it's well worth the time to engage with an experienced consultant that can guide your project from ideation to execution.

Consider the context.

Once you have assembled your team, you'll need to analyze the problem you're trying to solve to evaluate any ethical considerations, as well as the relative risk and corresponding accuracy that will be required. While high accuracy is always the goal, anomalies, environmental changes, and other unknown variables will make some degree of uncertainty inevitable.

For this reason, some challenges are better suited for computer vision than others,

particularly those that enable your organization to augment rather than replace the human decision-making process.

Optimize your training data.

As you prepare to develop and train a CV model, it will be important to consider not only the quantity of relevant images available but also the quality — including lighting, angle, size, color of the backdrop and more.

Due to the relative rigidity of computer vision, it can be difficult to know what types of outliers will lead to misidentification or misclassification. As a result, training will need to include a variety of positive and negative examples to improve results.

An experienced CV consultant or decision scientist will be able to help direct these efforts. Maximize the human factor. No matter the use case, any form of AI must be put into production in a way that is verifiable and supported by human decision-making. This means that in addition to training your computer vision model, you'll need to determine the most effective way to introduce the resulting intelligence to users. Unfortunately, when humans are consistently presented with the highly accurate intelligence, we quickly become reliant upon it and may fail to notice otherwise obvious mistakes. To prevent this, CV systems should employ tactics that continue to rely upon and engage active responsibility from human workers — especially in healthcare or military environments where the risk of inaccuracy is highly consequential.

Beware of bias.

Artificial intelligence is only as accurate as the data used to train it. Sadly, but inevitably, human biases are reflected in human data, often in ways that can be difficult to perceive. To overcome these challenges, developers must understand and adhere to the practices of responsible AI, ensuring CV models are consciously structured and rigorously tested under a range of conditions — particularly when human imagery is involved. In addition to relying on experienced consultants in this field, engaging a diverse range of decisionmakers can help to broaden perspectives, uncover unexpected challenges and safeguard against the perpetuation of bias in your model.

Think long term.

AI, including computer vision, represents an entire business lifecycle. As a result, you will need to make sure you're not only investing in the skills needed to develop an effective model, but also the infrastructure, pipeline and operational expertise to implement that model in a way that creates real, long-term business value. This is where MLOps comes into play. Artificial intelligence is selfdisrupting by nature, meaning the circumstances for which a model is trained are bound to change from the moment of implementation. MLOps goes beyond traditional DevOps to ensure that once a model is deployed, it's constantly tested and retested, and that it can retrain itself against data dynamically so that it continues to provide high quality intelligence even as the surrounding business environment changes

Looking forward

By embracing computer vision, modern organizations have a unique opportunity to drive higher quality, reduce the cost of goods and services, and position themselves at the forefront of disruption. As advancements in custom vision, new methodologies and algorithms continue to progress, computer vision will become easier and more cost effective to deploy.

While some of today's edge devices have the ability to run smaller AI models independent of the cloud, in the next few years, increased efficiencies will make it possible to run higher accuracy models on lower power devices. This will enable companies to adopt computer vision more rapidly and at lower cost. What if there is a smarter way to identify and respond to modern business challenges? See what is possible with computer vision.

> Artícle By : Ms. Gunjan Chandak

 Expert Lecture's To enhance the personality development knowledge of student's department organized expert lectures on "Personality Development and Interview Technique" on dated 30th April 2022 by Mr. Sohail Khan Director, Pathik consultancy Amravati has delivered the Expert Lecture. We have also organized expert lecture on "Python for data science" on 28th March 2022, by Mr. Prashant Jha, CO founder APS MICROTECH, Nagpur has delivered the lecture. Mr. Ankush Nag, Program Manager APS MICROTECH Nagpur, has delivered expert lecture on "Carrier opportunities after Diploma" which is helpful for student to gain the knowledge of goal setting in future life. 	GRARM GOVERNMENT Polyte Department of Computer En Newsletter 202	chnic, Arvi (Established in 1990) gineering 1-22
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• Mr. Ankush Nag, Program Manager APS MICROTECH Nagpur, has delivered expert lecture on "Carrier opportunities after Diploma" which is helpful for student to gain the knowledge of goal setting in future life.	 We have also organized expert lecture on "Pyr 28th March 2022, by Mr. Prashant Jha, CO four Nagpur has delivered the lecture. 	thon for data science" on nder APS MICROTECH,
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Images Captured During The Expert Lectures Conducted At Seminar Hall, Government Polytechnic, Arvi.



Pic 1.1 Expert lecture on "Carrier opportunities after Diploma" by Mr. Ankush Nag Program Manager APS MICROTECH Nagpur.



Pic 1.2 Expert lecture on "Python for data science" by Mr. Prashant Jha Co-founder APS MICROTECH Nagpur.



Pic 1.3 Students attending Expert lecture on "Personality Development and Development Technique" by Mr. Sohail Khan.

INDUSTRIAL VISIT

- The Department of Computer Engineering visited APS MICROTECH in Nagpur, where we covered domains such as Python and its applications, and 59 students visited the industry with faculty.
- In order to expose students and faculty to industry environment, industrial training and industrial visits are arranged regularly for students and faculty. also experts from industry are invited to interact with students and faculty.
- To further strengthen industry institute interaction department has signed Memorandum of Understanding (MoU) with few industries for the benefits of stakeholder in general. MSBTE also supports in this endeavor by arranging industrial training for faculty members.



Pic 1.1 Industrial visit to APS Microtech Nagpur



Pic 1.2 Visit to APS Microtech pvt.ltd Nagpur



Pic 1.3 Visit to APS Microtech pvt.ltd Nagpur

INDUSTRIAL TRAINING

• An industrial training course is being introduced to all diploma programmes in order to instill industry culture in students before they enter the workforce. Students will appreciate and understand the actual workings of an industry, best practises adopted in industry, and other requirements in the industry by being exposed to and interacting with real life industrial settings. Through this training, industrial needs such as soft skills, life skills, and hands-on practises are intended to be instilled in students. This brief interaction with industry will be useful in orienting students and preparing them to be industry ready upon completion of the diploma programme.

• The following competencies are intended to be developed through this course: i. Soft skills, such as communication, presentation, and others. ii.Life Skills, such as time management, safety, innovation, entrepreneurship, team building, and others

iii. Hands-on Practices, including shop floor implementation and quality assurance.

The industrial training is intended to supplement the competencies mentioned above obtained through several courses up to the fourth semester of the

i. Communicate effectively (verbally and in writing) in order to complete the work.

ii. Create an industry report on the completed work.

- iii. Demonstrate time management and workplace safety.
- iv. Collaborate in teams to complete projects on time and with high quality.

Duration of Industrial Training: Between 4th and 5th semester (Summer Vacation).

Duration of the training: Six weeks

Sr.no	Name of Company	No.of Students
1	IBASE ELECTROSOFT PVT. LTD. AMRAVATI	50
2	IT-NETWORKZ PVT.LTD. NAGPUR	19
3	MOUNT-REACH SOLUTION PVT. LTD. AMRAVATI	02
4	APC MICROTECH PVT.LTD. NAGPUR	03

STUDENT ACHIVEMENTS



Pic 1.1 Participation of Student institute level chess Competition



Pic 1.2 Final match of institute level chess Competition

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Pic 1.3 Winners of State level volleyball competition at Government Polytechnic, Amravati



Pic 1.4 Winners of Institute level volleyball competition

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