CENTRE FOR MEDICAL IMAGING STUDIES
GAYATRI VIDYA PARISHAD COLLEGE OF ENGINEERING
Approved by AICTE & Affiliated to AU,Visakhaptnam from 2022-2023
(Affiliated to JNTUK, Kakinada upto 2021-2022)
Accredited by NAAC at A^{++} Grade for 7 Years in the 3rd Cycle

COLLEGE OF ENGINEERING
(AUTONOMOUS)

CMIS
BEYOND INNOVATION

SKILL BASED
SUMMER INTERNSHIP
PROGRAM ON AI IN HEALTH CARE

Are you ready to make this summer unforgettable?
Seize this once-in-a-lifetime opportunity!

APPLY NOW

WHAT'S IN INTERNSHIP FOR YOU

- ☑ Real Time Project
- ☑ Knowledge on Python
- ☑ Cutting-Edge Research
- ☑ Internship Cetificate
- ☑ Hands-On Skill-Building

REGISTRATION END BY	15 May 2025
INTERNSHIP START DATE	19 May 2025
REGISTRATION FEE	2500/-
INTERNSHIP DURATION	Six Weeks (19-05-2025 to 27-06-2025)
MODE OF INTERNSHIP	Online (Google Meet)

For Inquiries Contact Us At :- cmis@gvpce.ac.in

About the Course & it's objectives:

The Skill-based Summer Internship Program on AI in Health Care is tailored to empower researchers, students, and professionals with the essential skills and techniques needed to leverage AI for medical image processing. Over the six weeks of the internship period, classes will be conducted five days a week and the program will delve into the fundamentals of AI, machine learning, and deep learning, focusing on their applications in analyzing medical images, including X-rays, CT scans, and MRIs. This program is designed as a comprehensive platform that discusses all the concepts from the basic level to the advanced level allowing the participants to develop automated models for real-time applications. This internship invites students, researchers, healthcare professionals, and AI enthusiasts to explore the intersection of AI and medical imaging. Participants will benefit from a combination of theoretical lectures and hands-on practical exercises using Python, a leading programming language in AI and data science.

Objectives:

- Introduce the basics of medical image analysis and its significance in contemporary healthcare.
- Offer a comprehensive understanding of AI, machine learning, and deep learning techniques applicable to medical imaging.
- Equip participants with practical skills in image processing using Python and key deep learning frameworks like TensorFlow, Keras, and PyTorch.
- Showcase the implementation of AI algorithms for various tasks, including image classification, segmentation, object detection, and anomaly detection in medical images.
- Explore real-world applications, challenges, and ethical considerations surrounding AI in medical imaging.

Internship Structure:

WEEK-1:
FUNDAMENTALS OF IMAGE PROCESSING

Day 1: AI, ML, and DL overview; healthcare landscape
Day 2: Python for AI (NumPy, Pandas, Matplotlib)
Day 3: Medical image modalities: Fundus, OCT, MRI, CT, X-ray & Ultrasound
Day 4: Image formats, data loading
Day 5: Image visualization, pixel intensity, histograms

WEEK-2:
IMAGE PREPROCESSING & CLASSICAL ML

Day 6: Image filtering (Gaussian, Median), normalization
Day 7: Edge detection, segmentation (Otsu, thresholding)
Day 8: Feature extraction (LBP, HOG, SIFT)
Day 9: Classical ML models: SVM, k-NN, Random Forest
Day 10: Mini Project: Classification using SVM

WEEK-3:
DEEP LEARNING BASICS

Day 11: Intro to CNNs, convolution/pooling layers
Day 12: Keras/TensorFlow/PyTorch basics
Day 13: Image classification pipeline
Day 14: Transfer Learning with pre-trained models
Day 15: Fine-tuning models on small medical datasets

WEEK-4:
ADVANCED DEEP LEARNING

Day 16: Semantic segmentation – U-Net architecture
Day 17: Instance segmentation, Mask R-CNN
Day 18: ResNet, DenseNet for medical tasks
Day 19: Data augmentation, patch-based training
Day 20: Project 1: Brain Tumor Segmentation (MRI + U-Net)

WEEK-5:
SPECIALIZED APPLICATIONS

Day 21: Project 2: Diabetic Retinopathy Detection
Day 22: Verilog Basics
Day 23: CNN model design using Verilog (Convolution)
Day 24: Activation function
Day 25: Decoder design

WEEK-6:
REAL-TIME PROJECTS & DEPLOYMENT

Day 26: Project 3: Real-time dataset Analysis classification
Day 27: Model deployment basics (Flask, Streamlit)
Day 28: Docker & cloud deployment options
Day 29: Final project presentations + feedback
Day 30: Wrap-up, evaluation, certification

At the end of the program an evaluation process is conducted to issue certificates with different grades to the participants

** The Google Meet link will be sent to registered participant everyday before starting of the class**