



**NUTECH**

**National University of Technology**

ICAT Project

# AI Cancer detecting system

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## Introduction:

Cancer is a rising threat to the Pakistani population with tens of thousands of people being affected by it annually<sup>1</sup>. Cancer remains one of the deadliest and most challenging diseases to cure globally, with early detection playing a crucial role in improving patient outcomes. Traditional cancer diagnosis through medical image analysis is time-consuming and prone to errors. This project aims to develop an AI system that accurately detects and classifies cancer types from medical images, addressing the limitations of conventional methods. By providing an additional layer of medical screening, this system will enhance diagnostic precision, improve time efficiency, assist in error checking, and support healthcare professionals in making informed decisions.

## Objective:

To develop and train an AI model capable of analyzing medical images to detect cancer and classify its type, aiming to support healthcare professionals with error-checking, early diagnosis, and improve healthcare outcomes. The aim is to reduce the workload of healthcare professionals, enhance accuracy and reliability of diagnoses, and enable timely treatment decisions.

## Proposed Solution:

We propose developing an AI model using supervised learning techniques to analyze medical images for cancer detection and classification. The system will:

- Accept medical image inputs (e.g., histopathology slides, X-rays, or CT scans).
- Detect if cancer is present.
- Classify the type of cancer (e.g., lung cancer, breast cancer).

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<sup>1</sup> Support, IDC. "Lung Cancer in Pakistan." *Best Diagnostic Center & Medical Centre in Pakistan -IDC Pvt.LTD*, 2024, [idc.net.pk/lung-cancer-pakistan/](https://idc.net.pk/lung-cancer-pakistan/). Accessed 19 Jan. 2025.

## Tools and technologies:

**Programming Language:** Python

**Libraries:** TensorFlow, Keras, PyTorch, OpenCV

## Conclusion:

This project aims to leverage AI for impactful healthcare solutions, demonstrating the potential of AI to address real-world challenges. The system developed will lay the foundation for further research and development in medical imaging and AI applications.