Times of India (Indore), 24th February 2026, Page - 02

IIT-I's AI system can detect breast & cervical cancer with high-accuracy

To Improve Detection & Make Screening More Accessible

TIMES NEWS NETWORK

Indore: In a breakthrough that could improve early cancer detection and make screening more accessible, researchers at IIT-Indore has developed advanced artificial intelligence algorithms that can automatically detect and locate breast and cervical cancers in medical images with very high accuracy.

The AI system is designed to assist doctors by quickly analysing medical images, flagging suspicious regions and reducing the chances of missed diagnosis. Researchers said the technology could be particularly useful in resource-constrained settings where specialist availability is limited, helping to prioritise high-risk cases and enabling timely treatment.

The research was led by prof Kapil Ahuja and his team at the math of data science and simulation lab in the department of computer science and engineering. The team includes PhD scholar Saurabh Saini, former postdoctoral researcher Dr Deepti Tamrakar and

former PhD student Dr Aditya A Shastri.

For breast cancer detection, the team developed a histogram of oriented texture descriptor algorithm that analyses fine texture patterns in mammograms. These patterns become irregular when cancer develops and the method can distinguish between healthy and cancer-affected tissue even in dense breast cases.

For cervical cancer, the researchers built a deep learning model called the block-sused attention-driven adaptively-pooled ResNet descriptor that captures both detailed features such as colour and edges and abstract structural features from colposcopy images.

The models were tested on four international datasets and achieved accuracy levels in the mid-to-late 90s, significantly outperforming existing techniques.

IIT-Indore director prof Suhas Joshi said, "This research reflects the institute's commitment to developing technology-driven solutions for critical national healthcare challenges. The team ensured that the AI systems clearly explain how they arrive at their decisions, which helps doctors understand and trust the results."

The lab-to-market initiative is being supported by DRISHTI Cyber Physical Systems Foundation at IIT-Indore.

Ahuja said, "Our AI algorithms were trained on global datasets predominantly from patients with European ancestry. We are now developing a prototype trained on Indian patients in collaboration with Dr Renu Dubey Sharma of HCG Cancer Hospital, Indore. We also plan to extend this approach to other major cancers such as thyroid, lung, oral, colorectal, and oesophageal cancers."