

## Novel computational model to help in early detection of cervical cancer

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A new computational model that can improve the diagnosis of cervical dysplasia or abnormal cells growth on the surface of cervix, has the potential for use in early detection of cervical cancer.

Precise pattern identification and classification are crucial for diagnosis and management of cervical cell dysplasia.

Scientists from Guwahati-based Institute of Advanced Study in Science and Technology (IASST), an autonomous institute of the Department of Science and Technology (DST), set out to develop a model that would be practically applicable in real-world situation and have unmatched accuracy while requiring the least amount of computation time.

Dr Lipi B. Mahanta and her team experimented with different colour models, transform techniques, feature representation schemes and classification methods to develop a powerful machine learning (ML) framework. This comprehensive analysis and experimentation aimed to identify the optimal combination for detecting cervical dysplasia.

The model's performance was tested on two datasets: one collected from healthcare centres in India and a publicly available dataset.

Using a method of image processing- Non-subsampled Contourlet Transform (NSCT) and the YCbCr color model (a way to represent colours in an image), the new model achieved an average accuracy of 98.02%.

The innovative model could revolutionise the detection of cervical dysplasia and provide healthcare professionals with highly accurate tools for better diagnostic precision and improved treatment outcomes.