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# Artificial Intelligence in Cancer Care

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## Abstract:

Artificial Intelligence (AI) is a term for simulated intelligence in machines. These machines are programmed to "think" like a human and mimic the way a person act. The goals of artificial intelligence include learning, reasoning and perception and machines are wired using a cross-disciplinary approach based in mathematics, computer science, linguistics, psychology and more. Since its beginning, artificial intelligence has come under scrutiny from scientists and the public alike. One common theme is the idea that machines will become so highly developed that humans will not be able to keep up and they will take off on their own, redesigning themselves at an exponential rate. Another is that machines can hack into people's privacy and even be weaponized. Other arguments debate the ethics of artificial intelligence and whether or not intelligent systems such as robots should be treated with the same rights as humans. Artificial intelligence (AI) has been springing up in hospitals and clinics around the world in both research and direct patient care settings, with machine learning being used to predict patient outcomes, diagnose diseases, and suggest treatments. In the field of oncology, emerging AI technologies can detect tumors, diagnose cancers, and even generate chemotherapy treatment recommendations that adjust in real time based on patient responses. Google's AI algorithm can detect cancer metastases with 92% accuracy. Google's AI software encompasses a variety of healthcare functions, from predicting the amount of time a patient will spend in the hospital to their probability of being readmitted, and even assessing their risk for death. In addition to rapidly sifting through extensive medical records to assess these metrics, Google's AI has a variety of pathologic functions. Detecting diabetic eye disease, expanding genomic research, and using digital pathology for cancer detection are among the most prominent applications. Google's AI cancer detection capabilities were published in a paper titled "Detecting Cancer Metastases on Gigapixel Pathology Images." A convolutional neural network, a method that involves computers making predictions based on recognizing visual patterns, was used to detect tumors as small as 100 × 100 pixels, with an accuracy of 92.4%. This is compared with the previous most accurate AI method, which had a tumor detection accuracy of 82.7%, whereas pathologists conducting their own manual search had an accuracy of 73.2%. Models are trained through generating heat maps that display the probability of tumor locations, with the maximum value representing the most probable tumor location. This method reduces the false-negative rate of tumor detection by 25% compared with pathologists and by 50% compared with the previous best AI method. Most errors made by Google's AI in tumor detection were related to the method of tissue preparation, primarily out-of-focus slides of tissues, which could be mitigated through more comprehensive labels for varying tissue types and improved scanning quality. Although Google's AI has the potential to improve the accuracy of cancer detection, further improvements in the technology are necessary in order to ensure that it is equipped for larger data sets.

## Biography:

Rajesh Ravindran Nair is working at Cedar Hospital, India.