Breakthrough in Cancer Screening Using an Innovative Deep Learning Solution

98% accuracy

achieved by NAS-SGAN with only 20% of the data annotated.[1]

Artificial Intelligence (AI) can improve the consistency and repeatability of breast cancer tumor grading, but it is difficult to build the solution. Annotating images for training is time consuming and laborious, and there aren't many labeled images already available. Two researchers have pioneered a novel approach using both labeled and unlabeled images to achieve high accuracy while minimizing the annotation workload. The solution failed on GPUs, so Intel helped with a technology architecture based on Intel® Xeon® Scalable processors. The NAS-SGAN approach uses unlabeled images to understand the data distribution and labeled images to grade the cancer. The new solution can not only detect cancer, but also classify it, and streamlines diagnosis, with physicians reviewing the images and classifications to make their treatment decisions.

> "The Intel® architecture was amazing. We were able to complete the training in a few hours. Because the servers had 192GB of memory, more than the 40GB or 80GB available on graphics cards, we were able to use high-resolution images and fit the whole model in memory."
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> **Dr Madhu Nair, Artificial Intelligence & Computer Vision Lab, Cochin University of Science and Technology**

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1 For more complete information about performance and benchmark results, visit https://www.intel.com/content/www/us/en/customer-spotlight/stories/cusat-customer-story.html