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Exploring Real-World Applications of Computer Vision

I have chosen medical image analysis for my computer vision application. Using computer vision in medical imaging is an accurate way to make sure that nothing is overlooked when diagnosing someone, gaining more accurate readings, and quicker results. The purpose of this in medical imaging is to make a faster, more detailed diagnosis and appointment for the patient. There are many ways that computer vision is used in medical imaging, however there are three that stood out to me. Computer vision is used in image acquisition devices, image segmentation, and post-processing.

Hospitals and doctors’ offices use computer vision technology in conjunction with their image acquisition devices. These are devices such as MRI machines, CT scans, X-Ray machines, Ultrasounds, and Endoscopes. Using computer vision alongside these machines allows for quicker readings and results for the patient, without losing any integrity in the images, but enhancing the images.

We have all been looking at a picture trying to focus on one specific thing, or wishing that we could somehow make the trees, or birds, stand out more. This is what computer vision does with image segmentation. Using image segmentation allows the medical staff to hyper focus on exactly what they need to in any given image. Whether it was the initial focus of the image, or something they perhaps saw after the imaging was done. This helps to better and more quickly diagnose someone.

In addition to using computer vision for 2D images, it is also used in 3D imaging. This often happens in post-processing. Having a more structured and clearer image for surgeons helps them to streamline their procedure and maintain a level of accuracy that is unbeatable. It enhances clarity and can highlight specific portions of the surgical area.

The benefits of this are in large proportion. Being able to diagnose people in record time can save so many lives and time for those that are dealing with ongoing health issues. The only downside one might argue is it may cause some medical staff to become complacent and reliant on the machines themselves, and not give their all to the job at hand.

In short, computer vision in the medical imaging field seems to come with great advantages and future advancements that will help those in need. Allowing people to live a more healthy and happy life, knowing they are being taken care of in advance.