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Online Vision Assistant Optimization of Neutron Radiography Detector System Optical Parameters

Content

Quality of radiographs acquired using the Charged Couple Device (CCD) camera based Neutron Radiography (NRAD) detector system is easily compromised by level of precision of the detector system optical parameters setups. Manual adjustment to optical parameters comprising the Field of View (FOV) and focusing is a tedious time consuming process which also expose the detector system components to possible damage. These raise a demand to exercise care when working with detector system's components, which also, takes time. The resulting effect is that, much time is spent in the radiological environment on setups than doing the actual experiments and the radiation safety of the operators is compromised as a result. We propose the upgrade of the current detector system at SAFARI-1's NRAD facility to include automation of the detector systems' optical setups using image processing algorithm and the electronic micro adjustment devices to eradicate the time consuming process and to improve the safety of the operators. Simulations were conducted to uncover the performance and robustness of the image processing algorithm. This talk will cover the work being done to upgrade the detector system to maximize the image quality and minimize the adjustment turnaround time.

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