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Towards a High-Throughput High-Resolution Neutron Pinpointing CMOS Camera System for Imaging

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High sensitivity CMOS cameras can collect neutron scintillation images at over 1000 fps. Individual neutron scintillation events can be pinpointed by a center-of-gravity image processing routine and a cumulative high-resolution image constructed using thousands of individual raw images. The time for such a data collection maybe 10 seconds but image processing on a CPU can take about 500 ms an image yielding total processing time of over a hour for all images. Multi-threading the processing of scintillation images across 1 or more GPGPUs should be able to achieve real-time generation of constructed high-resolution images.

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