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Utilizing Python and Computer Vision to Automate X-ray Image Acquisition of Capsules used at the National Ignition Facility[1] JIHYUN LEE, University of California, San Diego, CASEY KONG, General Atomics — An X-ray microscope instrument, Xradia 510 Versa, is used to collect radiographs of High Density Carbon (HDC) capsules that are used for the indirect drive laser approach of Inertial Confinement Fusion (ICF). The radiographs of the capsules are analyzed to record quantitative measurements of properties to be used in ICF simulations and to ensure the quality of the capsules. Current analysis of the capsules requires manual centering in the X-ray microscope's (XRM's) field-of-view, which leads to increased operation time. To enhance the efficiency and the quality of the data, Python Application Programming Interface (API) will be utilized to automate the centering, acquisition and analysis of the capsule radiographs.

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