

Overview of the Multi-Informatics for Nuclear Operations Scenarios Testbed

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Abstract: In this talk, we will introduce the Multi-Informatics for Nuclear Operations Scenarios (MINOS) project. MINOS is a multi-laboratory collaborative effort to explore modern data science techniques using data collected from a testbed facility located at Oak Ridge National Laboratory. This testbed consists of the High Flux Isotope Reactor (HFIR) and the Radiochemical Engineering Development Center (REDC), which actively produce and ship a large variety of nuclear materials. These facilities have been instrumented with a range of sensors including radiation, infrasound, and seismic, which persistently collect and store data for analysis. MINOS seeks to leverage these data streams to demonstrate statistical methods and machine learning algorithms for data fusion, analysis, and interpretation with the goal of gaining insight into complex and interconnected facility operations. We will conclude with an overview of our own results on multi-sensor tracking of vehicle movement at the site and discuss how it fits within the overall goals of the project.