Quantitative Analysis for Computed Tomography

Stage 2 Progress Report

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1 Background

1.1 Industrial Partner

The Pacific Northwest National Laboratory (PNNL) is a U.S. Department of Energy research lab which specializes in nuclear and material science. They have been located in Richland, WA, ever since the lab's inception in 1965. Over the decades they have diversified from nuclear weapons research to medicine, biology, environmental science, and more. In the pursuit of improving material analysis methods, and to support the proliferation of additive manufacturing in precision industry, the lab wishes to implement Computed Tomography (CT).

1.2 What is Computed Tomography?

Computed Tomography is a method of 3D analysis of internal and external structure using X-ray images. It consists of imaging X-ray transmission through an object at a wide variety of angles. 3D data is constructed through the Radon transform

2 Scope of the Problem

3 Initial Strategy

4 Data Visualization

5 Metrology Methods

6 Next Steps