



Project Title

Advanced Image Segmentation for Nuclear Forensics

Project Reference Code: DNDO-LANL-Oyen

Hosting Site

Los Alamos National Laboratory
Los Alamos, NM

Project Description

The student will develop and implement automated image analysis algorithms for our MAMA (morphological analysis for materials attribution) software. This project is funded by DNDO for providing a software framework to aid analysts in quickly quantifying and characterizing shapes and textures of samples of materials from microscopy images. Image segmentation is the critical first step in morphological image analysis. The student will develop and implement image segmentation algorithms that are more accurate than the state-of-the-art using a big-data approach by leveraging additional image data on the same sample; or using an interactive machine learning approach by leveraging the user-in-the-loop to reduce the amount of human labor required. Image segmentation is a problem of broad interest to the image analysis research community, yet this project will customize segmentation methods to specific data and resources available in nuclear forensics, namely multiple image modalities and human expertise.

Disciplines

Computer Science (General)
Information Science and Technology

Mentor(s)

Diane Oyen, doyen@lanl.gov, 505-695-6618

Internship Coordinator

Scott Robbins, srobbins@lanl.gov, 505-667-3639

The name and contact information of the hosting site internship coordinator is provided for further assistance with questions regarding the hosting site; local housing availability, cost, or roommates; local transportation; security clearance requirements; internship start and end dates; and other administrative issues specific to that research facility. If you contact the internship coordinator, identify yourself as an applicant to the DNDO Summer Internship Program.

Interns will not enter into an employee/employer relationship with the Hosting Site, ORAU/ORISE, DHS, DNDO or DOE. No commitment with regard to later employment is implied or should be inferred.