ONLINE IMAGE ANALYSIS TRAINING DEVELOPMENT IN SUPPORT OF SMCRA APPLICATIONS[1]

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Abstract. Leica Geosystems Geospatial Imaging in coordination with the Office of Surface Mining is developing online training for the ERDAS IMAGINE software. The online training will focus on image analysis applications and software techniques to help the users improve upon existing skills as well as develop new skill sets. As skill sets develop, the user will become more efficient in image analysis applications that can be directly applied to SMCRA applications.

Training will be done online therefore classes can be taken anywhere and at anytime. Along with the economical benefits, the skill sets presented in an online training class will focus only on a few related applications at a time. This will reduce the amount of time taken away from core job responsibilities while allowing the user to focus on applications most relevant to their needs.

Learning can take a 'holistic' approach therefore offering an enhanced learning experience. Assessments will be incorporated into the training to insure a level of knowledge has been obtained. When the assessment is passed, a certificate of completion can be generated. Tracking and monitoring tools can be used to record classes taken and certificates given.

Introduction

Leica Geosystems Geospatial Imaging (LGGI), in coordination with the Office of Surface Mining, is developing online training for Leica's suite of software. The new training will focus on image analysis applications and software techniques to help software users not only improve upon existing abilities, but to create and develop completely new skill sets. As skill sets grow and develop, the users become more efficient in image analysis applications that can be directly applied to SMCRA applications.

In the past, LGGI worked in conjunction with the Office of Surface Mining (OSM) to develop instructor-led training for the Leica's Image Analysis for ArcGIS software. To date, this has been a large success with an ever increasing number or students registering for current course offerings. Based on this success, the OSM, in cooperation with LGGI, would like to

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make a larger array of courses available to students in a format that will require less time away from core job responsibilities.

Current Training Development

Historically, the OSM and associated agencies have focused largely on the use of vector information when working with field data. The growth and accessibility of imagery has brought with it an increasing desire to bring remote sensing into both field work, and analysis applications. Users just beginning to adopt this technology require training to ease their transition, familiarize themselves with the concepts, as well as optimize information gained from imagery.

Currently online training for the Image Analysis for ArcGIS software is underway. The course is designed to provide students working with imagery in the field access to instruction that will teach them the skills they need to gain the greatest amount of relevant information from imagery in the shortest amount of time. The online format allows training subjects to be developed as independent modules. The modular format provides students access to subject matter most pertinent to their current needs. This allows the student to focus time learning skills most applicable to the job at hand.

The current course development focuses primarily on Image Reprojection in Image Analysis for ArcGIS. Other course topics under consideration include Image Orthorectification, Image Enhancement, Using Digital Elevation Models, Change Detection and many others. Because remote sensing is a new application for many, training in the fundamental underlying science of remote sensing is also being developed.

Data used in the training courses will be application relevant by taking data from the OSM's own databases. Courses will more closely simulate a real world situation and allow the student to not only learn a new tool or skill, but also to see how it can directly impact current job responsibilities. Case Studies and Real World Questions will be incorporated in courses to initiate thoughtful application of student's new skill sets in simulated real world situations. Continuing course development allows the OSM to collect student feedback and suggestions that can then be used to identify new training needs, create real-life scenarios, and incorporate user-relevant data.

Benefits of Online Training

Providing training in a digital format allows the courses to be dynamic and interactive. Visual demonstrations and simulated workflows along with slides communicate how to work with the software and visualize the results of the application. Video, narration, and closed captioning can also be incorporated for an even more dynamic experience. All courses will be 508 compliant.

Training is done on the student's own computer and is not limited by time or location, so the cost compared with traditional instructor led training is significantly reduced. The student will no longer incur travel expenses or take extended time away from core job responsibilities. The student will be able to maintain job productivity while gaining knowledge and skill sets. The student also sets their own pace, so that they maximize the retention of new subject material.

The online format also allows the students to complete an interactive quiz that assesses how much knowledge they obtained during the course. When the quiz is passed, they receive a certificate indicating the course was completed with success. Supervisors and managers have access to tools to monitor all of the courses that a student has taken and how many certificates they have earned. This capability helps to ensure all employees maintain continuing education requirements and certifications.

Conclusion

On-line training offers an enhanced learning experience though multi-formatted visual, audio, and applied application instruction. This training curriculum is modular, interactive, interchangeable, and focuses on real world tasks, offering a connection between class content and workplace experiences. It focuses on critical thinking skills and applying acquired skills to real world situations. On line courses offer flexibility, achievable objectives, varied learning techniques, knowledge assessment, trackability and certification, all while minimizing time away from core job responsibilities.