

Workshop 1: Applying Data Science tools in ArcGIS Insights

Dr. Tasos Dardas

Abstract:

ArcGIS Insights is a data analytics and visualization application used to customize data science with spatial and non-spatial data. What you will learn from this workshop are the following characteristics: a) become more familiar with ArcGIS Insights; b) how to clone R and Python kernels in the same Anaconda environment; c) how to integrate both kernels in ArcGIS Insights; d) parallel processing data in Python, and; e) how to perform some data science in Python, R, and Python + R (piping) in ArcGIS Insights.

Workshop 2: Applied Deep Learning in ArcGIS Pro & Python

Dr. Tasos Dardas

Abstract:

In narrow artificial intelligence, deep learning (DL) is a specialized subset of machine learning that “emulates” the way humans learn on a daily basis. Thus, it has the ability to process unstructured and unlabeled data (i.e. voice, image recognition) without the intervention of the analyst. What you will learn from this demonstration are the following components: a) cloning your ArcGIS Pro Python environment, installing fast.ai, and scripting in Jupyter Notebooks; b) identifying what tools exist for implementing DL in ArcGIS Pro and Python, and; c) hands-on of one of the DL methods, Single Shot Detector (SSD). Available in the ArcGIS API for Python, SSD is a DL method to detect specific objects in high resolution satellite imagery / live cameras. Additionally, Keras/TensorFlow will be used to create customized SSD models and be implemented in ArcGIS Pro.

Workshop 3: Animating CityEngine models with the Unity game engine

Michael Luubert

Abstract:

This workshop will demonstrate how to import a procedurally generated CityEngine model into the Unity game engine for further visualization and simulation. The sample model we will use is the futuristic city from the 2017 Education and Research Conference’s CityEngine workshop. Once the model is imported into Unity, participants will learn how to apply lighting to the scene, add animated vehicles between buildings, and control the movement of the viewing camera to create an interactive fly through.

Workshop 4: Designing Urban Futures

David Kossowsky

Abstract:

ArcGIS Urban is Esri's newest solution to assist in 3D urban planning and public engagement. This interactive workshop will focus on urban design and visualization using ArcGIS Urban and CityEngine. Attendees will learn about, and test out various ways to implement and create design parameters, visual indicators and zoning guidelines in the ArcGIS Urban environment. Workflows between CityEngine and ArcGIS Urban will also be demonstrated to explain how building features can be updated, and additional building details can be added to urban scenarios.

Workshop 5: Designing user interfaces for geospatial applications

Jonathan Van Dusen

Abstract:

Providing user-friendly interfaces in your applications is crucial for increasing task completion and user satisfaction. This can be particularly important for geospatial applications, as these may include a high degree of complexity or may be used by the public or non-GIS professionals. This workshop will discuss the factors involved in designing highly usable interfaces, as well as how these relate specifically to geospatial applications. You will learn how to create interface wireframes and prototypes as part of a design process, as well as how to test these with users to determine an interface's effectiveness prior to implementation.

Workshop 6: Building Android Apps for Smartphones and Tablets

Dr. Hossein Hosseini

Abstract:

The ArcGIS Runtime SDK for Android allows you to build interactive smartphone and tablet mapping applications quickly and easily. This workshop teaches you how to build your own mapping applications in Android Studio using the ArcGIS Runtime SDK for Android.

Workshop 7: Enhancing geostatistical analyses with the R-ArcGIS Bridge

Dr. Mike Leahy

Abstract:

This workshop will introduce the R-bridge for ArcGIS, a tool that enables you to integrate the advanced data science and statistical capabilities of the open source R project with the geospatial analysis and visualization capabilities of the ArcGIS platform. The learning outcomes of this workshop are to achieve a basic understanding of writing programs in the R statistical environment, how to read, write, and use

ArcGIS vector and raster geospatial datasets for analysis in R scripts, and how to integrate R analysis tools seamlessly within geoprocessing workflows and visualize analysis outputs in ArcGIS Pro.

Workshop 8: Bringing GIS analysis to life using Python Notebooks

Dr. Mike Leahy

Abstract:

This workshop will introduce how to use Python Notebooks, a tool that has become vital to the Python and Data Science communities, to enhance your workflows for GIS data management, analysis, and visualization. The learning outcome of this workshop is to gain understanding of the basics for working with Python Notebooks to describe/document workflows, execute Python code, and visualize data and analysis outputs, with a focus on integrating with more advanced geospatial capabilities of ArcGIS Pro and ArcGIS Online via `arcpy` and `arcgis` Python modules.