

## **Building Geoprocessing Tools with Python**

### **Goals of the workshop**

- Learn how to create custom geoprocessing tools using Python. Tools you create can be used in ArcGIS Desktop, ArcGIS Engine, and ArcGIS Server.

### **Major topics covered**

- Differences between stand-alone scripts versus script tools and advantages of script tools versus stand-alone scripts.
- Script tool boilerplate—importing and using system and ArcGIS scripting modules; accessing toolboxes and tools.
- Script tool input and output parameters and their properties.
- Adding script tools in ArcGIS Desktop using the wizard.
- Script tool messaging—message severity, error handling, and progress bar.
- Working with the result object.
- Running tools in-process.
- Learn how to provide custom behavior for the script tool dialog box using the ToolValidator class. Custom behavior includes the enabling/disabling of parameters, providing default values, and updating string keywords filters.
- Using the ToolValidator class for updating the description of output data, which allows your tools to work seamlessly in ModelBuilder and improves your organization's overall efficiency when working with ArcGIS.
- Using AMLs as the source to a script tool. AML and Python methods equivalence.
- Documenting script tools.