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# ArcPy And ArcGIS: Geospatial Analysis With Python
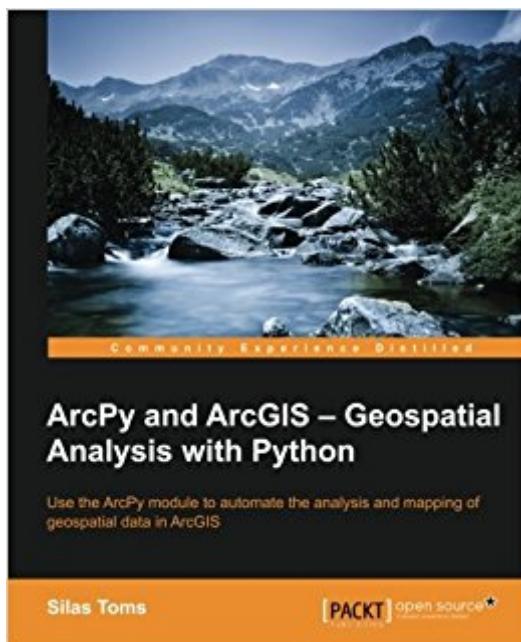


ArcPy and ArcGIS – Geospatial Analysis with Python

Use the ArcPy module to automate the analysis and mapping of geospatial data in ArcGIS

Silas Toms

# Synopsis

Use the ArcPy module to automate the analysis and mapping of geospatial data in ArcGIS About This BookPerform GIS analysis faster by automating tasks, such as selecting data or buffering data, by accessing GIS tools using scriptingAccess the spatial data contained within shapefiles and geodatabases, for updates, analysis and even transformation between spatial reference systemsProduce map books and automate the mapping of geospatial analyses, reducing the time needed to produce and display the resultsWho This Book Is ForIf you are a GIS student or professional who needs an understanding of how to use ArcPy to reduce repetitive tasks and perform analysis faster, this book is for you. It is also a valuable book for Python programmers who want to understand how to automate geospatial analyses.What You Will Learn Understand how to integrate Python into ArcGIS and make GIS analysis faster and easier Model an analysis and export it to Python for further improvement Create Python functions from exported scripts using ArcToolbox tools to avoid repetitive code Update the records of interest in your existing geospatial data automatically using data cursors Add new geospatial data to existing datasets automatically from field-collected data or data produced during analysis Export formatted analysis results to spreadsheets automatically Update map documents with analysis-generated data and export maps to PDF or image formats Create geometric networks and analyze routes using scripts In DetailArcGIS allows for complex analyses of geographic information. The ArcPy module is used to script these ArcGIS analyses, providing a productive way to perform geo-analyses and to automate map production.This book will guide you from basic Python scripting to advanced ArcPy script tools. This book starts off with setting up your Python environment, demonstrates a complex ArcPy script tool with multiple iterations, illustrates data access module cursors, and explains how to use ArcPy Geometry classes. Then, you will learn how to output maps using ArcPy.Mapping, and how to create ArcGIS script tools.With the help of this book, you will be able to create repeatable analyses reducing the time-consuming nature of GIS, making you into a GIS professional as powerful as a whole team.

# Book Information

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## Customer Reviews

Silas Toms book on Arcpy and ArcGIS scripting is a very comprehensive introduction to Python in the ArcGIS environment. The book starts out with the basics of Python (data types, iteration, concepts). I also like that he talks about the PYTHONPATH, the Python interpreter and what happens under the hood when a script is ran. This is an important concept that seems to be often overlooked in ArcGIS Python scripting books.After covering the basics and important background information, the book dives right into some of the ArcPy functionality with some of the geoprocessing tools and onto more advanced concepts such as cursors. One thing that I like before getting too deep into ArcGIS scripting, the author introduces some best practices and pushes the use of functions for code reusability. The author discusses how create and pass in parameters into custom functions and makes good use of doc strings.After introducing cursors, the book covers an important concept that seems to be lacking in other ArcGIS books which is working with geometry objects. This can allow for creating features programmatically with full control and the class methods allow for powerful spatial analysis. There is another section on advanced geometry methods later in the book.Next, the book moves into creating script tools. This is a really nice section that introduces ArcGISâ ™s built-in framework for turning Python scripts into fully functional toolbox tools with the same familiar GUI. Parameter types are discussed as well as how to pass the parameters from the user input via the script tool interface into the script for execution. One thing I feel that was missing from this section was information on the Tool Validator Class.

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