



ESRI DEVELOPER WORKSHOP 2022



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ArcGIS and Python



May 13, 2022 | Tallink Spa & Conference Hotel | Sadama 7, Tallinn
<https://arcg.is/37GjtSR>



Agenda

Total 40 + 5
minutes

- Introduction
 - Ways of using Python with ArcGIS
- Geoprocessing with *arcpy*
 - Demo
- ArcGIS API for Python
 - Demo



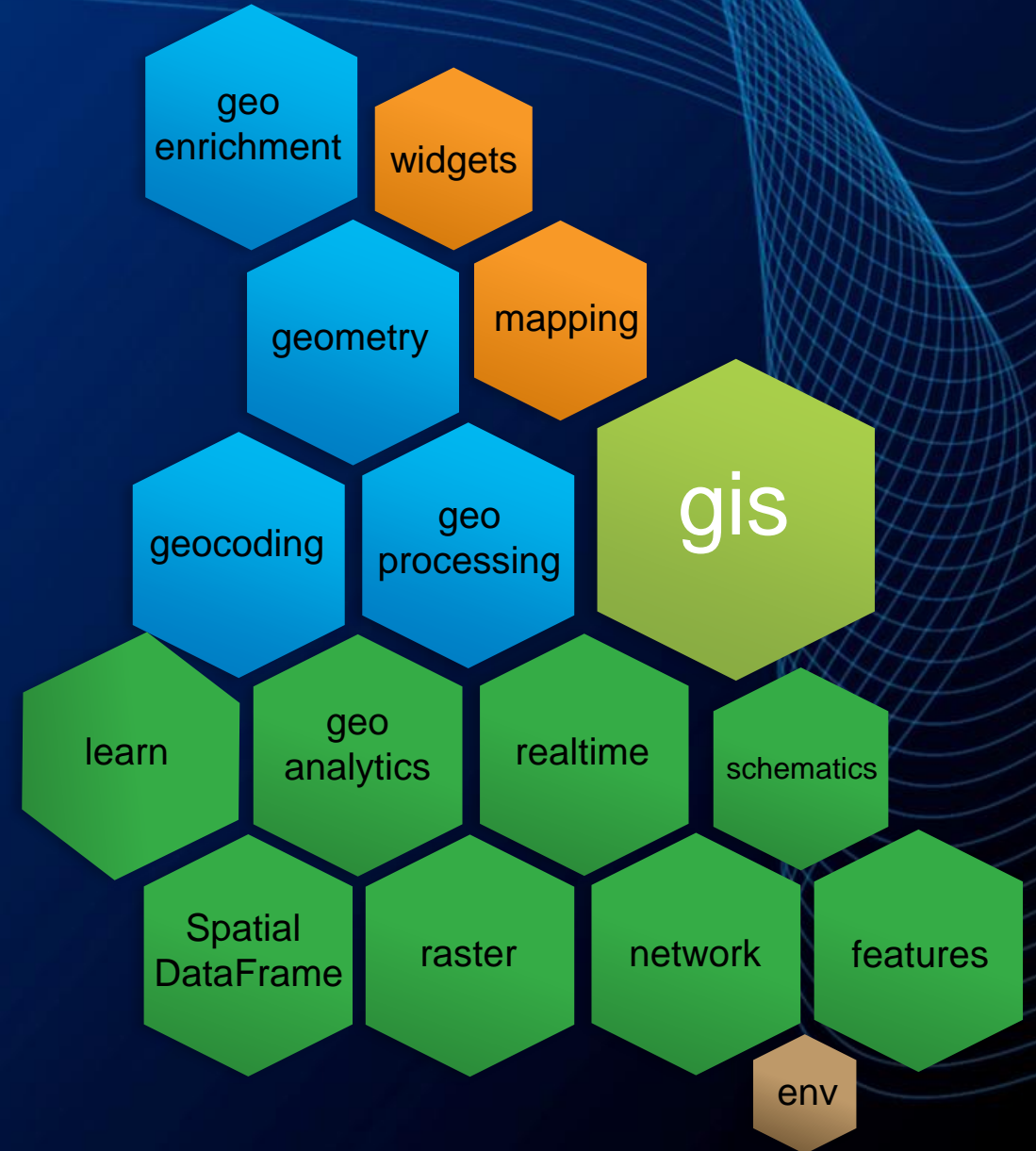
Ways of using Python with ArcGIS

- ArcGIS Pro
- ArcGIS Notebooks
 - in ArcGIS Pro
 - in ArcGIS Online
- IDE + conda environments



ArcGIS API for Python

- Data operations
 - Load / store
 - visualize
- Get infos about organization
- Machine learning





Geoprocessing with *arcpy*

- Using *arcpy* in ArcGIS Pro
- Using *arcpy* in IDE

ArcGIS API for Python – over 2300 methods & functions



Web GIS Administration

Users - create, delete, update, credit budgeting, privileges, licenses, user groups, transfer ownership

Security – auth models, user roles, portal & server licenses, certificates, theming, collaboration, password policies, OAuth, Web Adaptor, Webhooks

Servers – datastores, federation, logs, machines, services, reports, sites, config store, jobs



Web GIS Content Management

Items - Publishing, cloning, updating items, editing features

Distributed editing – versions, replicas, syncs, attachments, parcel fabrics, utility networks, validations

ArcGIS Apps – manage content for hub, workforce, storymaps, survey123, tracker



Spatial Modeling

Spatially Enabled DataFrames, spatial overlays, joins, tessellations, merging layers, data extractions

Analyzing patterns – density, hot spots, outliers, interpolation, clusters

Prediction – regression, random forests

Topographic – elevation profiles, viewsheds, watersheds, trace downstream

GeoEnrichment

Summarization – describe data, aggregations, summarize nearby & within, summarize center & dispersion
GeoAnalytics – big data analysis



Imagery analysis

Data management – add, edit, delete raster, raster collections, raster stats,

Information extraction – over **170** raster functions, raster algebra

Ortho mapping – compute sensor model, corrections, generate ortho mosaic, DEM, surfaces



Location Analytics

Suitability - similarity search, dwell locations, detect incidents, geocoding

Network analysis – OD cost matrix, service areas, location allocation, plan routes, closest facilities

Geocoding



Spatial Machine Learning

SeDF – integration with Scikit-Learn, other ML libs

Imagery – classification, segmentation, trend raster, spectral unmixing

Deep learning – detecting objects, classifying pixels, classifying objects, instance segmentation, NLP, managing models, fine tuning.



Visualization

Smart mapping, 2D <-> 3D map widget, author web maps, scenes,

Renderers - matplotlib style renderers for map symbols, chart using Python charting libraries, represent raster functions as task graphs