

Using Business Analyst for Data Engineering to Support Spatial Data Science and AI



HELEN THOMPSON
Esri



```
mirror_mod = modifier_ob.  
#set mirror object to mirror_  
mirror_mod.mirror_object =  
_operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
_operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
_operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
  
#selection at the end -add  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active  
("Selected" + str(modifier_  
mirror_ob.select = 0  
= bpy.context.selected_obj  
data.objects[one.name].sel  
  
print("please select exactly  
  
--- OPERATOR CLASSES ---  
  
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"  
  
context):  
context.active_object is not
```

AI in ArcGIS



Data-driven algorithms and techniques that automate **prediction, classification and clustering** of data

Traditional Machine Learning

- Useful to solve a wide range of spatial problems
- Geography often acts as the 'key' for disparate data

Spatial Machine Learning

- Incorporate geography in training and computation
- Shape, density, contiguity, spatial distribution, proximity, condition, space and time

Computationally Intensive

- Esri's continued advancements in storage and both parallel and distributed computing make solving problems at the intersection of ML and GIS increasingly possible

Applying GeoAI



Identify

Assemble the training set
and define the problem



Train

Teach and improve what
is being learnt over time



Apply

Test and assess knowledge
in real world applications



Refine

Learn from application
and outcomes



AI in Business Analyst

Large Language Model (LLM) training based on Esri's **demographic, point of interest and socioeconomic data**

Semantic Search

- Ask Natural Language (NLP) based *questions* to find relevant and related demographic variables
- Create more refined and predictive results using concepts, phrases and prompting

Interesting Facts

- Identify hidden and undiscovered insight into a place or market
- Define rules for how sites are compared and what information is returned

Find Related Points of Interest (POIs)

- Expand your search beyond categories and names to brands, associated terms and relationships
- Trained on over 200 million points, thousands of categories, brands and n-gram sequences



Spatial Analysis in Business Analyst Web

Community and Market Area Analysis

- Comprehensive tools to create, model and report on any area in more that 170 countries

Smart Map Search

- Exploratory data analysis and engineering tools

Comparison Analysis

- Criteria based scoring and benchmarking

Suitability Analysis

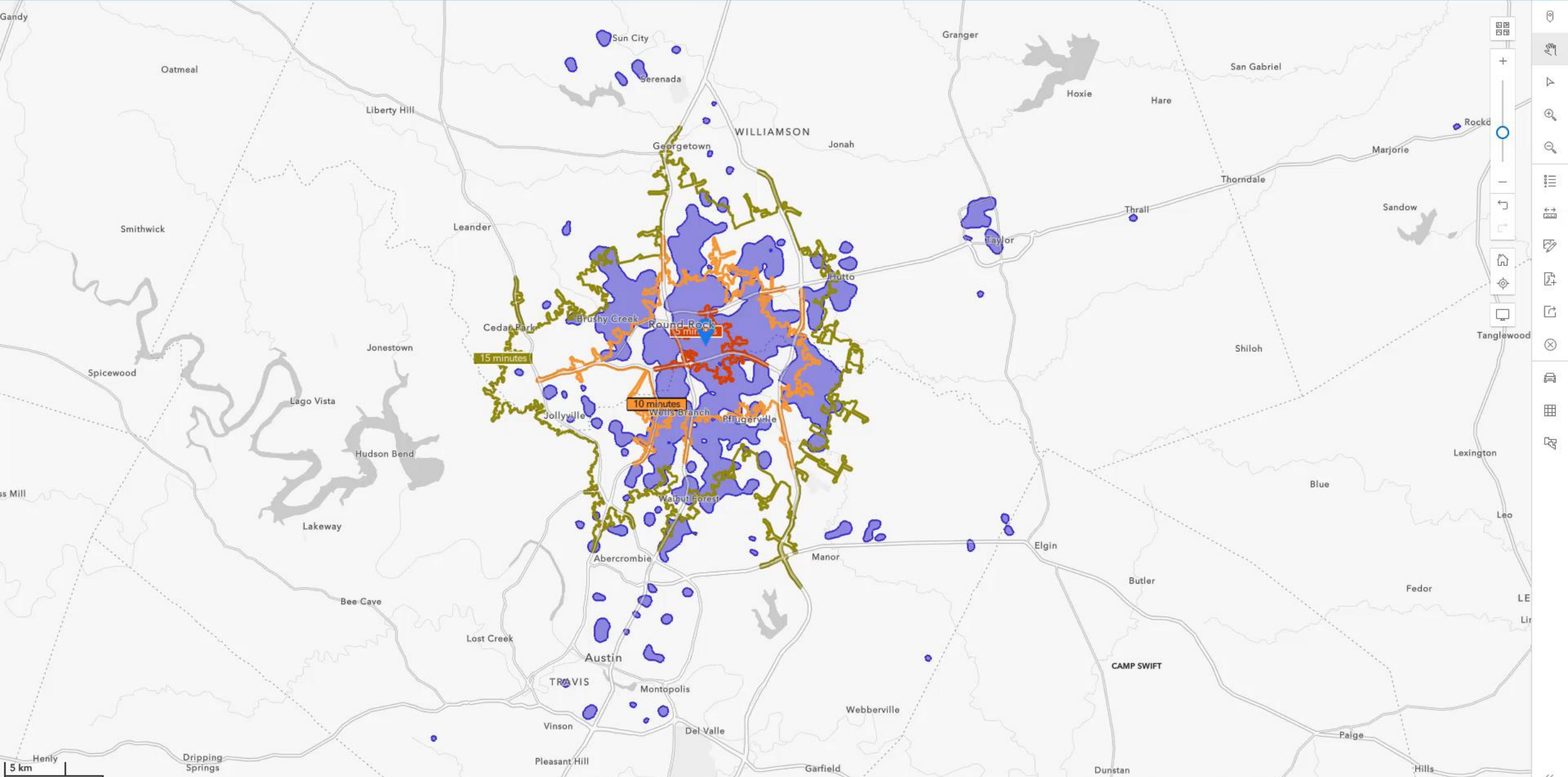
- Composite Index creation and model builder

Void Analysis

- Supply and demand analysis comparative analysis

Threshold Analysis

- Advanced spatial demand and trade area analysis




```
mirror_mod = modifier_ob.  
set mirror object to mirror.  
mirror_mod.mirror_object  
operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
  
selection at the end -add  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active  
("Selected" + str(modifier.  
mirror_ob.select = 0  
= bpy.context.selected_obj  
data.objects[one.name].sel  
  
print("please select exactly  
  
--- OPERATOR CLASSES ---  
  
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"  
  
context):  
context.active_object is not
```

Thank You

HELEN THOMPSON
Esri

