



# Predictive Spatial Data Science and Analytics for Water Utilities

Jason Isherwood, Jonas Rugys



esri  
Infrastructure Management & **20**  
**GIS Conference** **20**

# Agenda

01

## Introduction

Why should your utility care about spatial data science and geo-enabled analytics?

02

## Predictive Data Science Demo

Exploring the out-of-box spatial data science capabilities of ArcGIS Pro

03

## Geo-enabled Analytics Demo

Gaining a greater understanding of the why with ArcGIS Insights

04

## Wrap Up and Resources

The power of working together

05

## Q&A



# Spatial Data Science

## Geo-enabled analytics

Visualization

Real-Time/Big Data

Data Engineering

## Clustering

Cost Analysis

## Time-Series Forecasting

Machine Learning

Proximity

Logistics and Prioritization

Project Planning

## Predictive Analysis

Location Optimization

Spatial Statistics

Deep Learning

Pattern detection

Leak Detection

Data Enrichment

## Data Sharing and Collaboration



***Why should your utility care?***

# The value of data science and analytics to water utilities

- Massive amounts of data coming from many different systems
- Data rich, information poor
- Turn data into understanding
- Use that understanding to make informed decisions

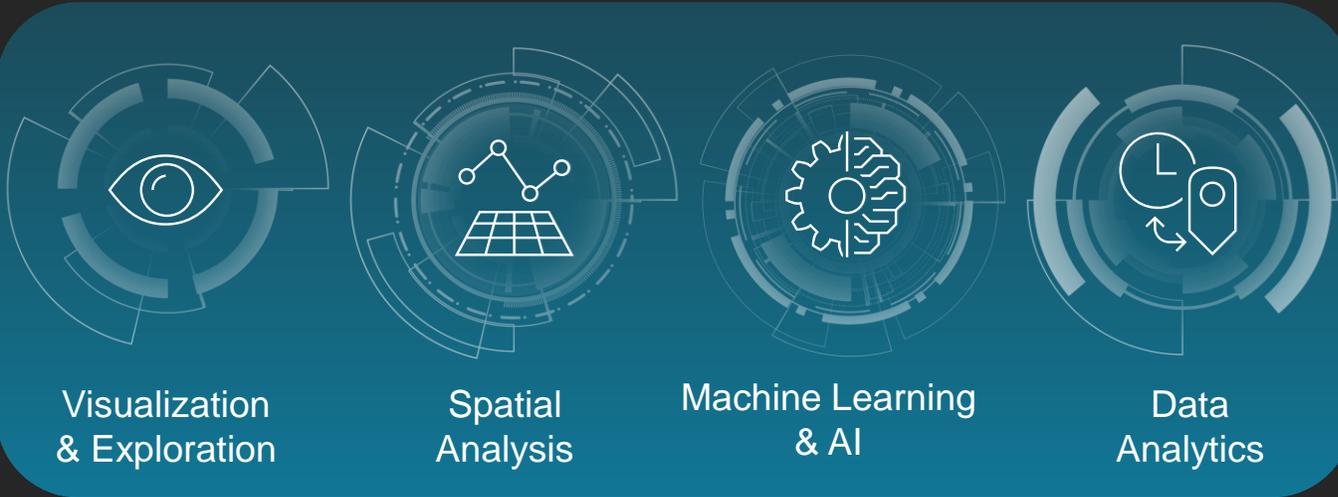


# The building blocks of spatial data science

Using location to find patterns and tackle complex data problems



Data Engineering



Visualization & Exploration

Spatial Analysis

Machine Learning & AI

Data Analytics



Modeling & Scripting



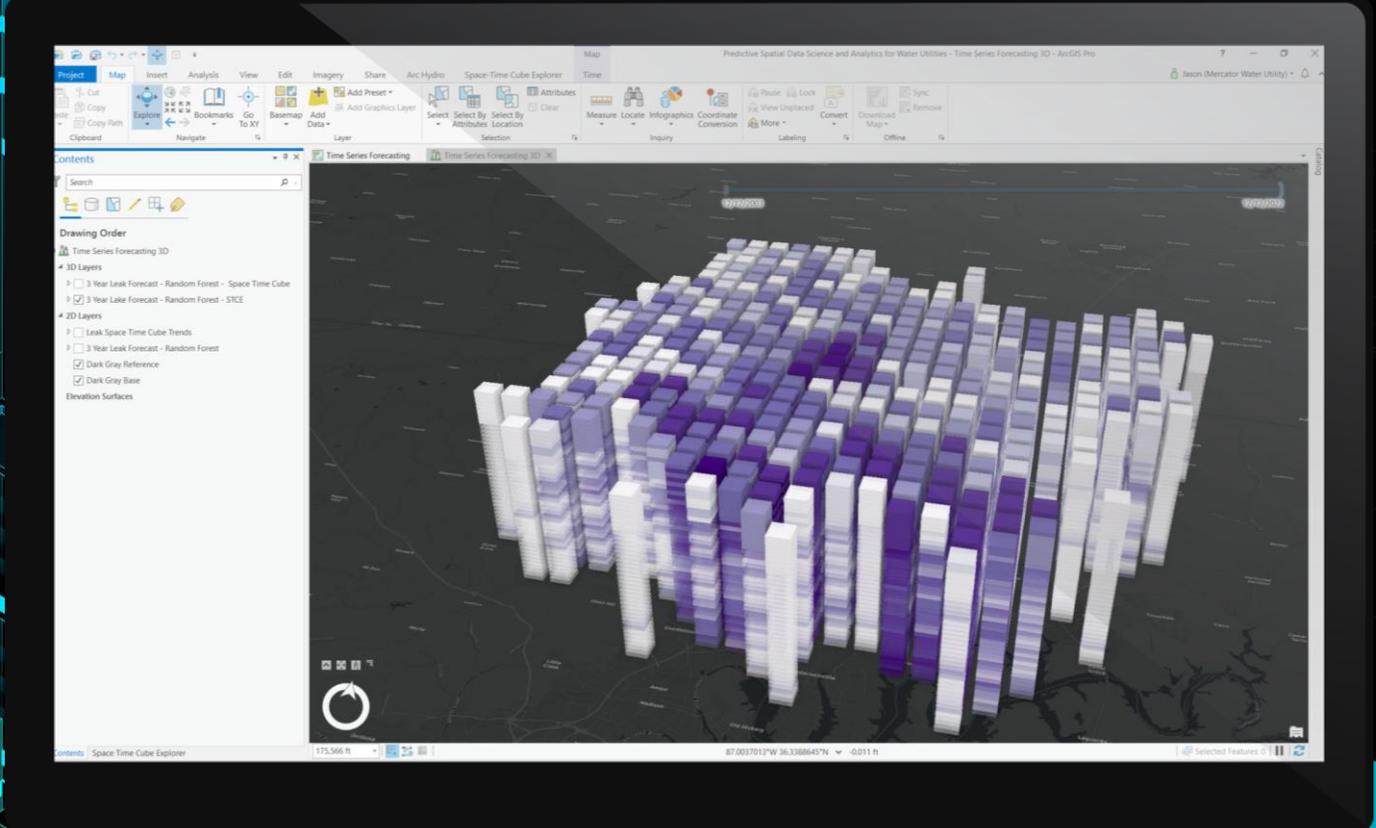
Sharing & Collaboration



# How do these capabilities fit into the ArcGIS Platform?

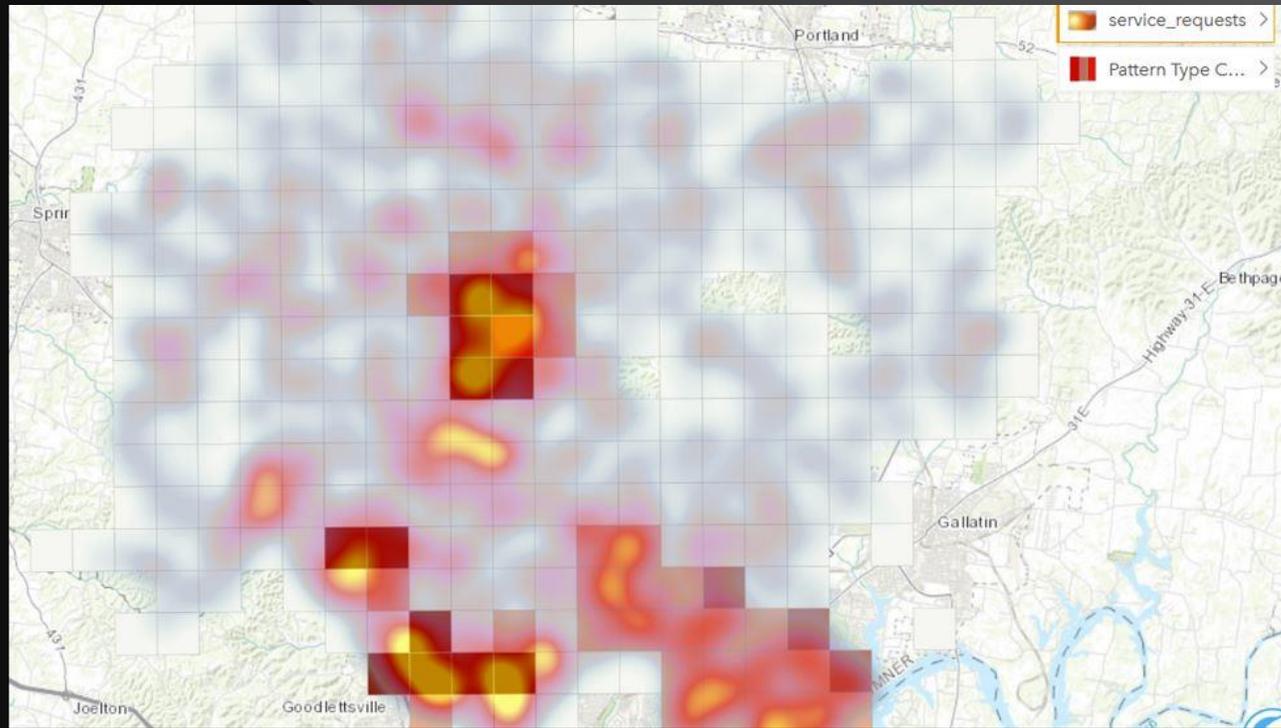
- **Powerful out-of-the-box spatial data science and analytical capabilities on the desktop or in the cloud**
- **Connecting to the larger ecosystem of data science and analytical tools**





# Predictive Data Science Demo

Jason Isherwood



# Geo-enabled Analytics Demo

Jonas Rugys

# What did we cover today?

And where we should go next...



Data Engineering



Visualization & Exploration



Spatial Analysis



Machine Learning & AI



Data Analytics



Modeling & Scripting



Sharing & Collaboration

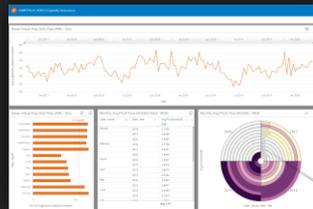


# Analysis gives you answers but stories drive action

## Sharing your results across the ArcGIS Platform

- Data science and analytics are only useful if people can interpret and understand the results
- Your analysis is only as good as it is useful to your organizational decision makers
- Share, collaborate, and tell the story of your data

### Insights workbooks



### Web Apps



### Storymaps



### Dashboards



# Resources

- Water Analytics
  - <https://www.esri.com/en-us/industries/water/water-analytics>
- Insights for Water
  - <https://www.esri.com/en-us/arcgis/products/insights-for-arcgis-water>
- Spatial Data Science
  - <https://www.esri.com/en-us/arcgis/products/spatial-analytics-data-science/>
- Density-based Clustering
  - <https://pro.arcgis.com/en/pro-app/tool-reference/spatial-statistics/how-density-based-clustering-works.htm>
- Time Series Forecasting
  - <https://www.esri.com/arcgis-blog/products/arcgis-pro/announcements/introducing-time-series-forecasting-in-arcgis-pro/>
- Spatial Data Science MOOC
  - <https://go.esri.com/explore-sds>

## Thank you!

- [jisherwood@esri.com](mailto:jisherwood@esri.com)
- [jrugys@esri.com](mailto:jrugys@esri.com)





esri

THE  
SCIENCE  
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WHERE