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Geospatial ML with Amazon SageMaker

Aaron Sengstacken

Sr ML Solutions Architect
awsaaron@amazon.com

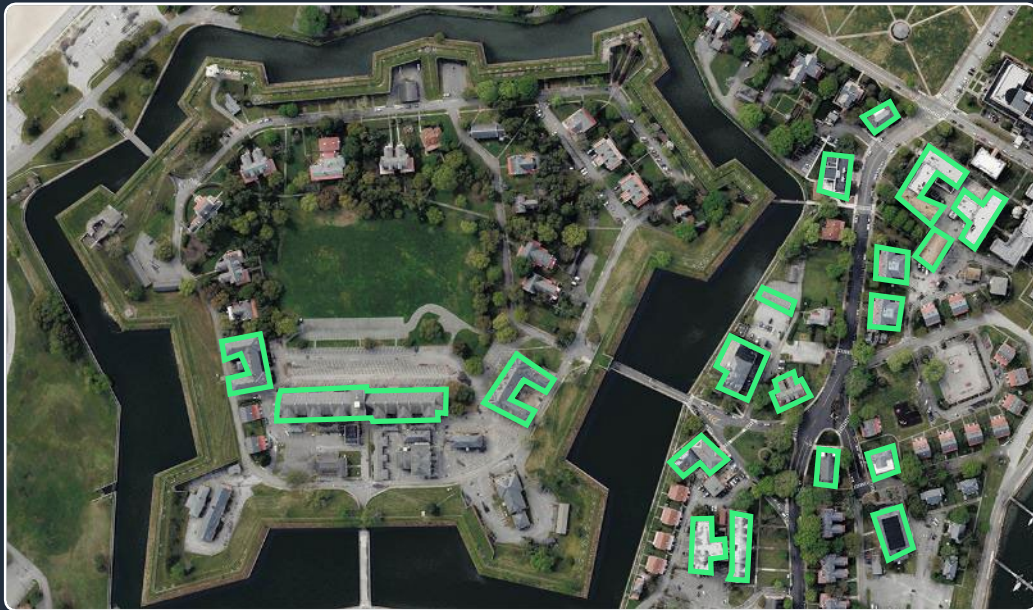Xiong Zhou
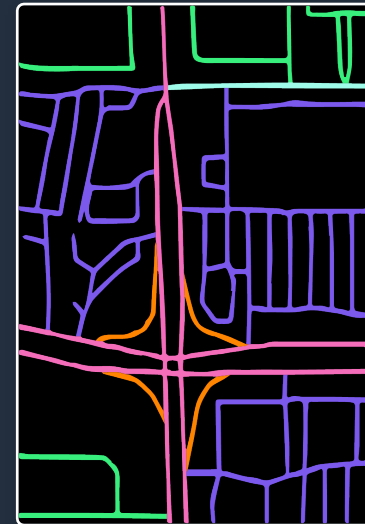
ML Applied Scientist
xiongzho@amazon.com

Agenda

- Amazon SageMaker Geospatial capabilities overview

- Monitoring deforestation demo using geospatial data

- Measuring glacier total area demo using geospatial data

- How to get started

What is geospatial data?

Raster:
Aerial and satellite imagery

Vector:
Mapping data

Road mask
(color as speed)

Legend:
- 24 Hour Fitness
- 7-Eleven
- 76 Gas Stations
- 84 Lumber
- 85C Bakery Cafe

Challenges with geospatial ML

1 — Accessing high-quality geospatial datasets requires working with multiple data sources and vendors

2 — Preparing massive geospatial data for training and inference can be time consuming and expensive

3 — Specialized tools are required to visualize geospatial data and integrate with MLOps infrastructure

4 — Data scientists often require geospatial expertise, and the learning curve is steep

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Access geospatial data sources

Use data sources from AWS

- Landsat 8

- Sentinel-2

- Open Street Map

Bring your own licensed geospatial data

- Planet Labs

SageMaker now supports geospatial ML

Build, train, and deploy ML models using geospatial data

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Access readily available geospatial data sources

Efficiently process or enrich large-scale geospatial datasets

Accelerate model building with pretrained ML models

Analyze and explore predictions with visualization tools

SageMaker geospatial use cases

Assess risk and insurance claims

Inform trading strategies

Monitor climate change

Support sustainable urban development

Maximize harvest yield and food security

Predict retail demand

Deforestation Monitoring Demo

Snow Pack Monitoring Demo

Get started today

Official website

Developer guide

Example notebook

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Thank you!