

# On The Line

Building a Mobile Application for Wildland Firefighters

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GEOG 596A

# Background



ARCHAEOLOGICAL  
TECHNICIAN



FOREST SERVICE



FIRE SCHOOL



Professional Experience



Wildland firefighters typically use drip torches to burn off a buffer along a forest service road or dozer line, reducing vegetation for when the main fire hits it.

Butte, Tehama, Glenn Complex  
California 2020



Elkhorn Fire (August Complex)  
California 2020



Red Salmon Complex  
California 2020



Wildland firefighters  
burn at night when the  
relative humidity is  
higher.

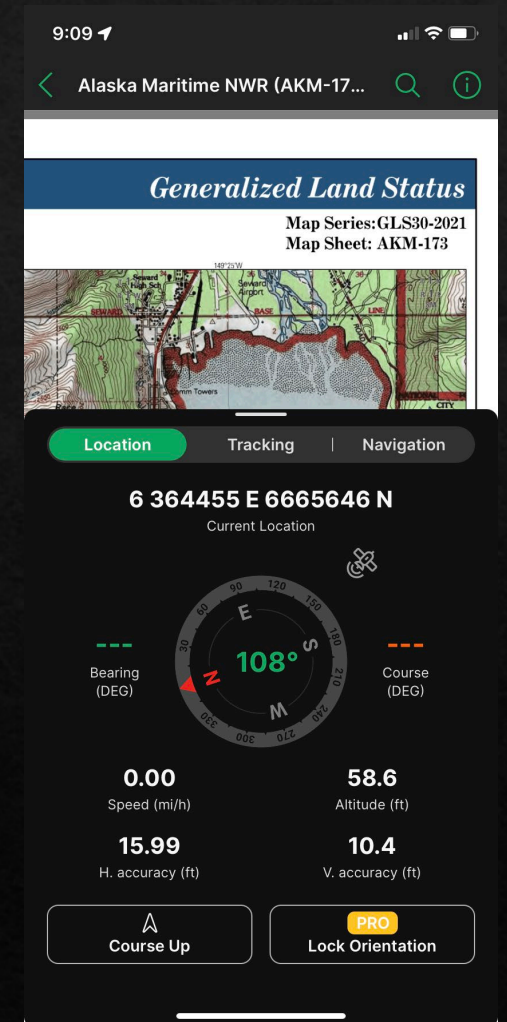
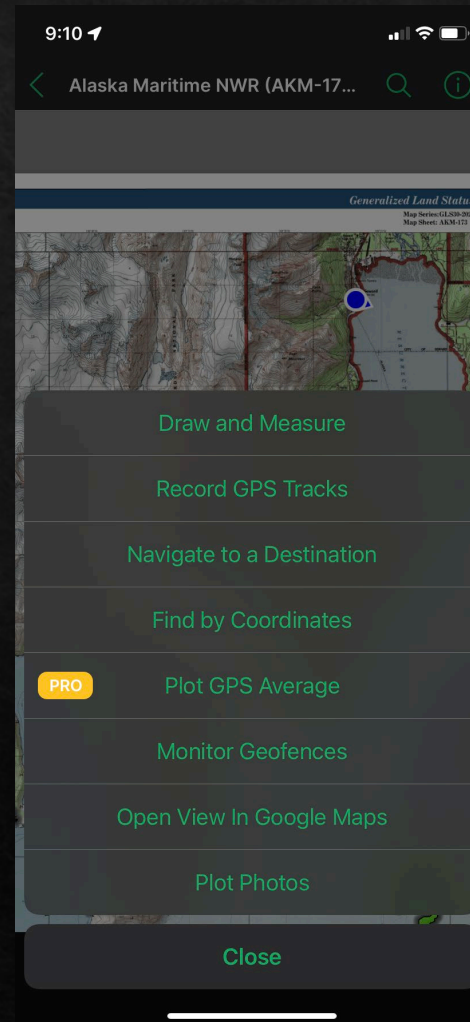
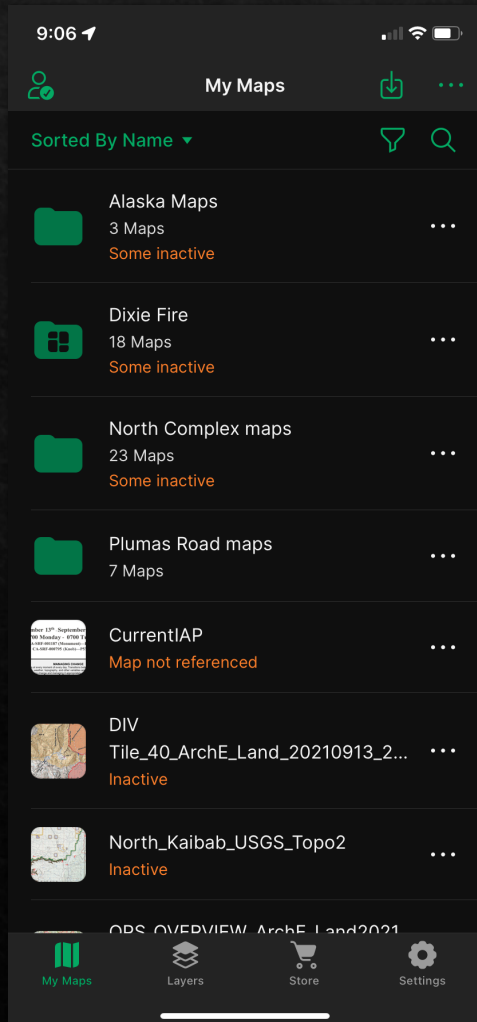
Tucker Fire  
California 2019



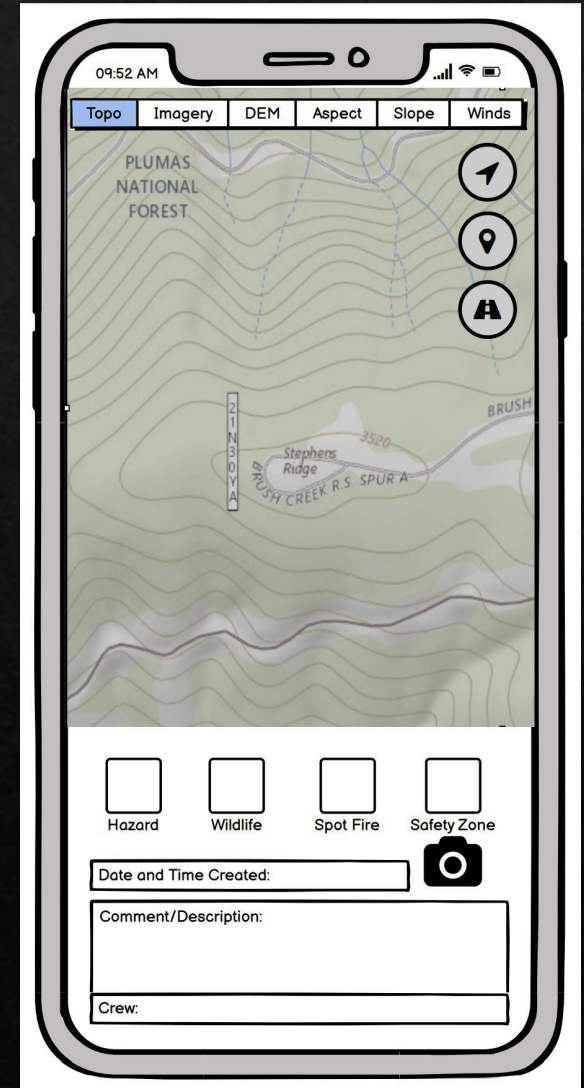
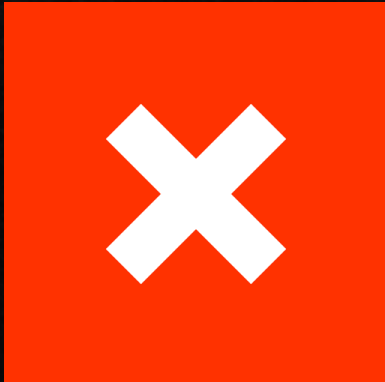
Red Salmon Complex  
California 2020



# Navigating Large Incidents



# “On The Line”



# Resources for Overhead



Fire Camp

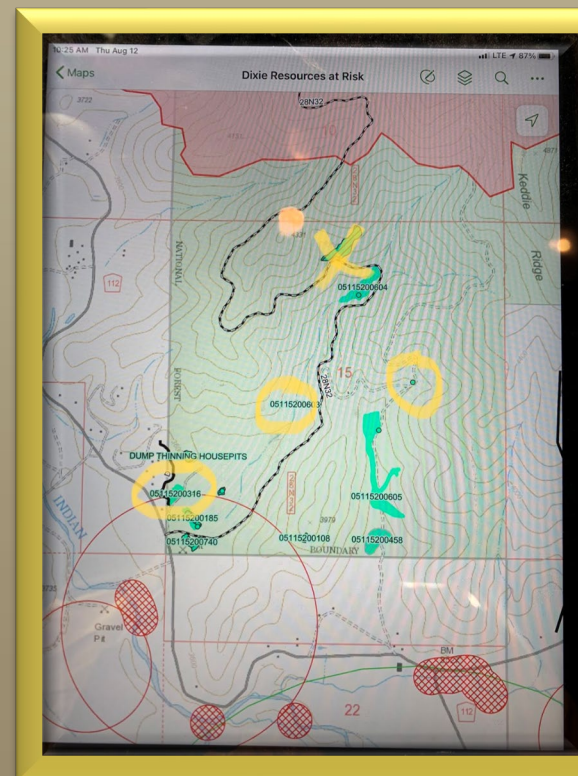


Fire ARCH



READ

ArcCollector



# “Wildfire Safe”

**WILDFIRESAFE**

HOME ABOUT FEATURES CONTACT REGISTER SIGN IN

**Incident List**

Search...

GACC: NRCC Dispatch Center: All

Size: All Fire Management Unit: All

Sort By: CLEAR FILTERS

- 5 Bacon Rind 1,739 ac • 11% • 6/20/2018
- 2 **Cougar Fire** 7,172 ac • 75% • 7/27/2018
- 1 Howe Ridge Fire 9,292 ac • 85% • 7/12/2018
- 2 Paola Fire 802 ac • 9% • 7/02/2018
- 4 Sandy Point 14,782 ac • 61% • 6/11/2018
- 3 Satchel Creek 182 ac • 98% • 7/30/2018

**2 Cougar Fire**

Incident # 2019-COCOS-123456 Updated 10/31/18 - 10:49 AM

Start Date 7/27/2018 Size 7,172 ac

Containment 75% GACC Northern Rockies

Dispatch Center Fire Management Unit Rockies 1

State Montana County Lincoln

7 Day Overall Weather Rating

11/01	11/02	11/03	11/04	11/5
2	2	1	1	1

WEATHER FUELS TERRAIN

7 Day SFW Rating

11/01	11/02	11/03	11/04	11/5
Low	Moderate	High		

7 Day ERC Rating

Coordinates: Degs: Lat: 41.406743 Long: 7.172 ac • 75% • 7/27/2018

# Getting Started



American Red Cross  
Emergency App



FEMA App



Natural Disaster  
Monitor



The Weather Channel  
App



AllTrails Premium



Cairn



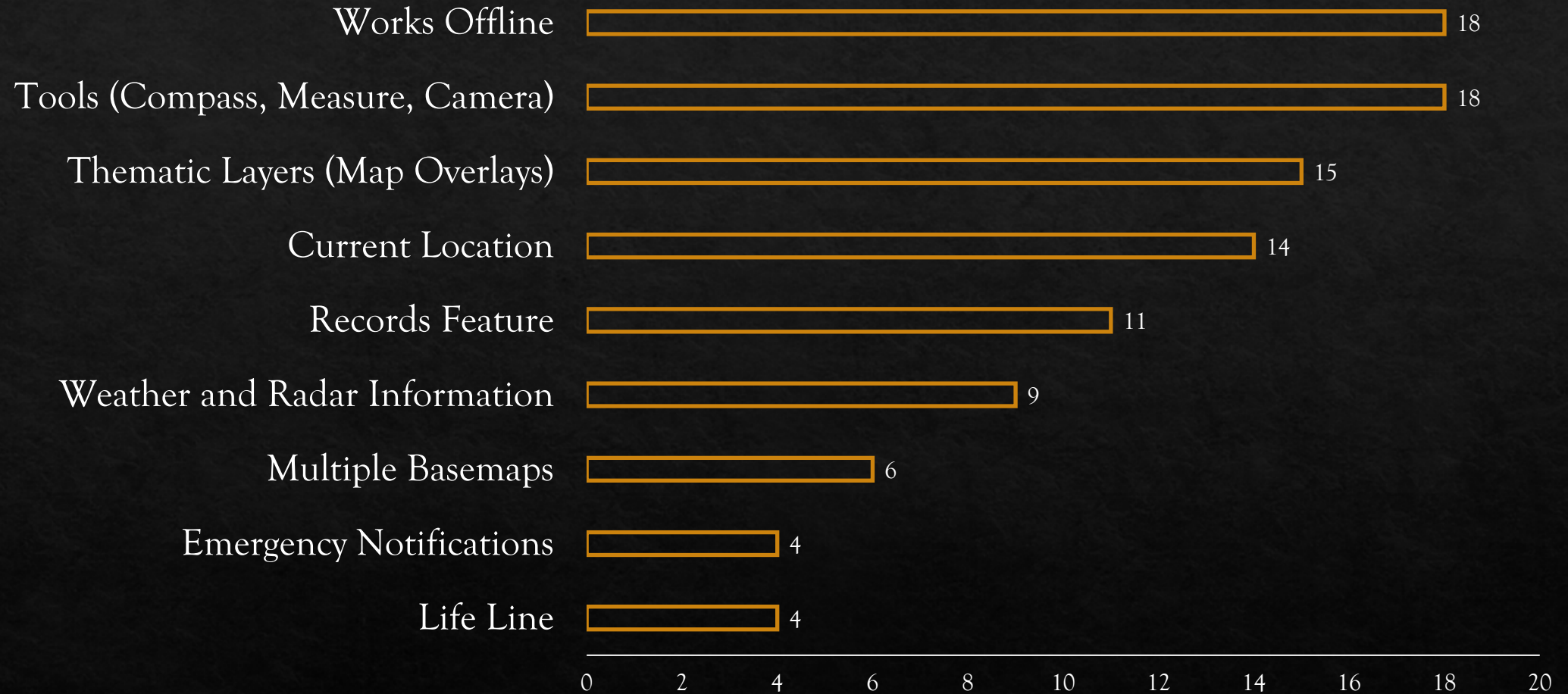
Gaia GPS: Offroad  
Hiking Maps



PeakFinder

# Reviewing Similar Applications

CORE FEATURES



TOTAL

# Main Core Features

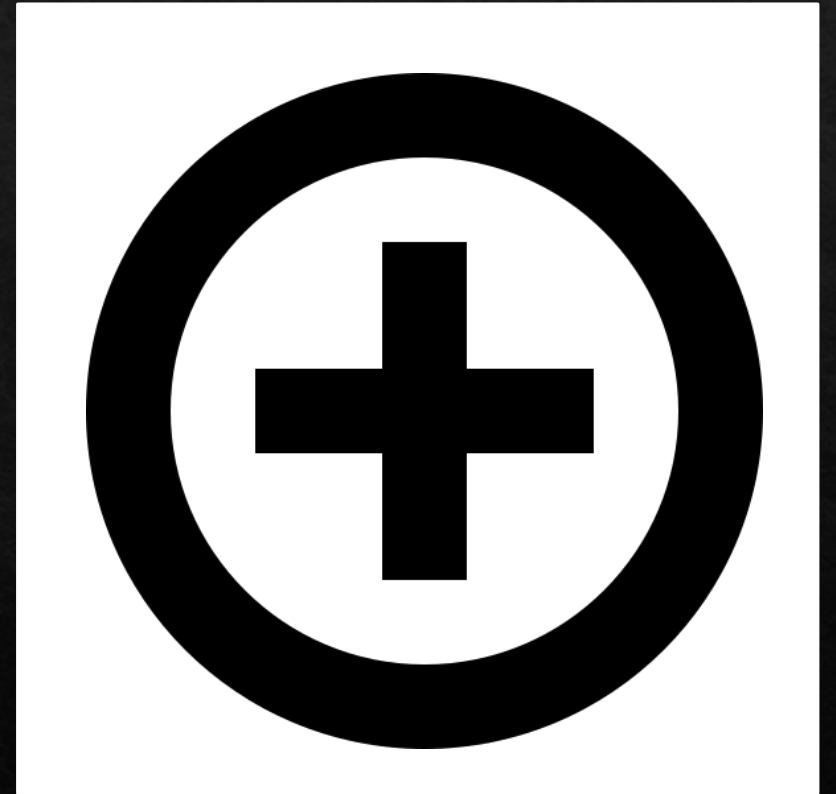
Works Offline

Tools


Thematic Layers & Overlays

Georeference User's Location

Records Features



# “On The Line” Core Features



Features to Attempt:

- ❖ Thematic Layers & Overlays
- ❖ Georeferencing User's Location
- ❖ Records Features
- ❖ Tools (Measure, Camera)

If Time Allows:

- ❖ Works Offline
- ❖ Multiple Basemaps
- ❖ Sharing



# Platforms

## ArcGIS AppStudio

- ◇ Can create a mobile application that works **offline**
- ◇ Can use templates to get started
- ◇ Contains examples, tutorials, and documentation to navigate the platform
- ◇ Can distribute the developed app on desktop, iOS, or Android

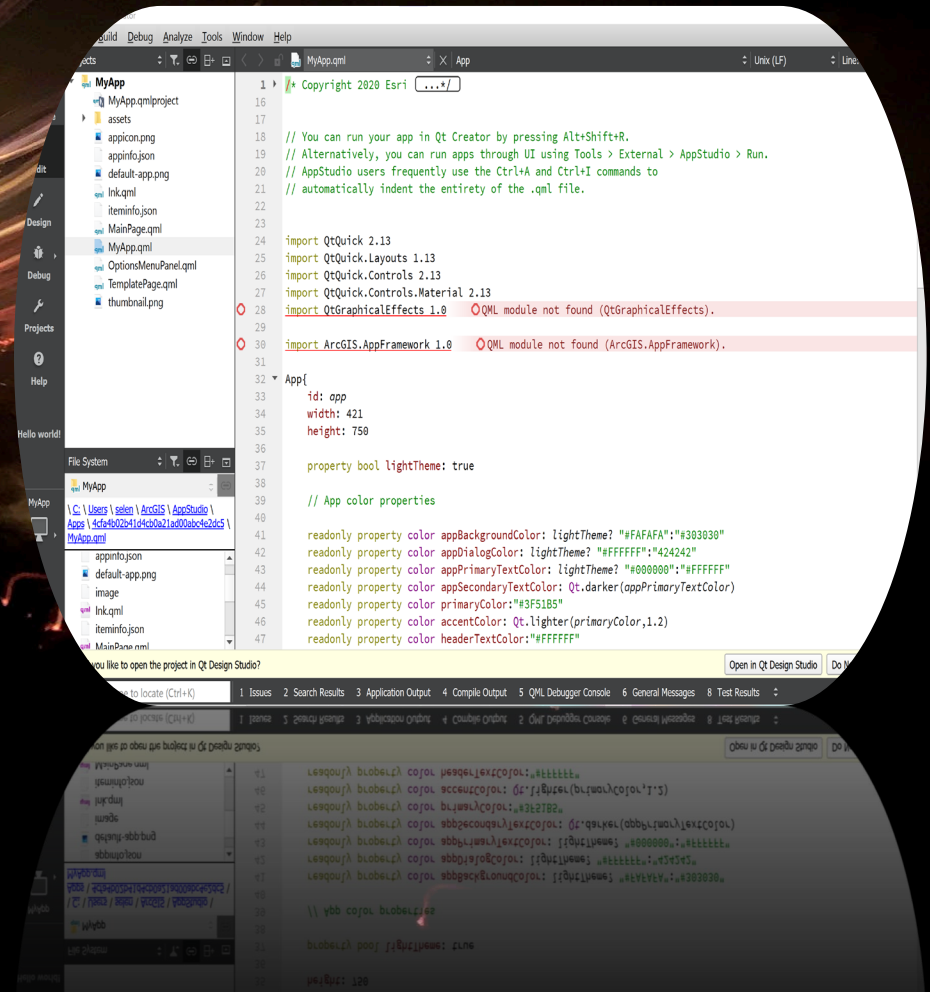
# ArcGIS AppStudio

What's the catch?

Heavy coding to customize application

Multiple programs and files to deal with for a novice programmer

More bugs than I would like to try to figure out



# Platforms

## ArcGIS AppStudio

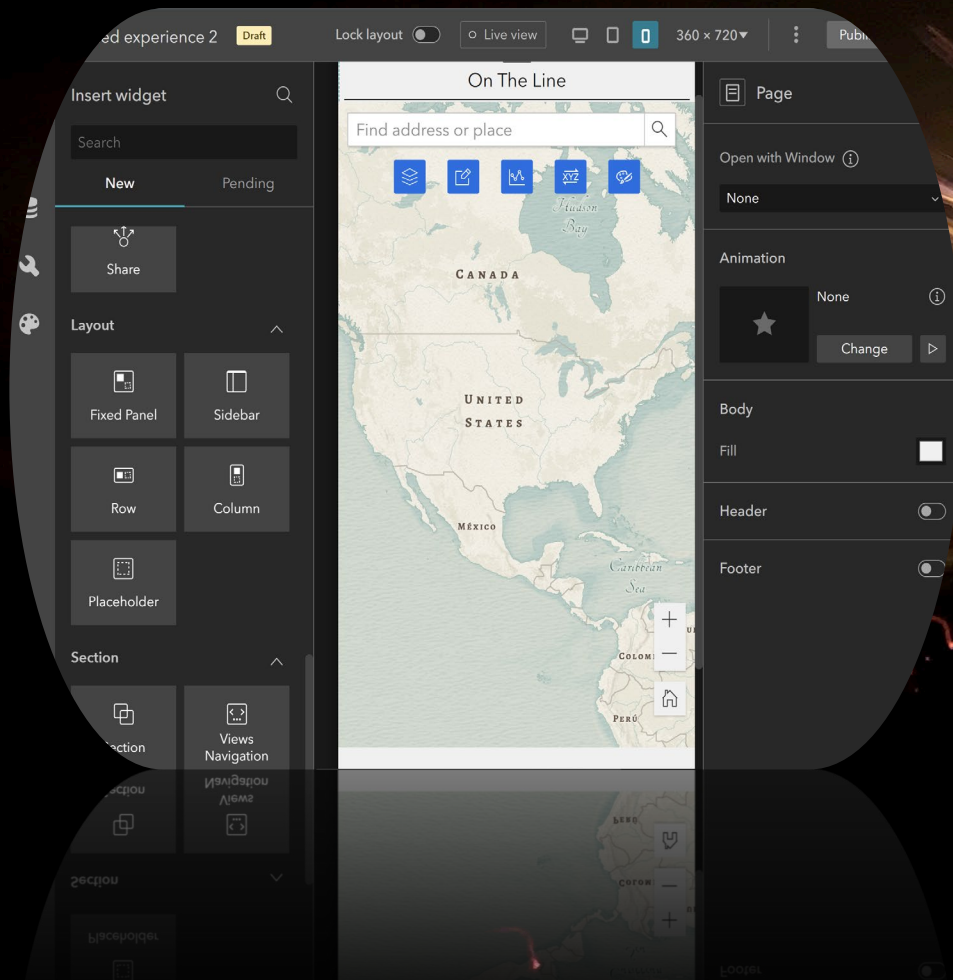
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## ArcGIS Experience Builder

- ◆ No coding experience needed
- ◆ Drag and drop widgets that include layout widgets, tool widgets, map and data centric widgets, etc.
- ◆ Easy to add map data
- ◆ Easy to preview/test run application on the desktop

# ArcGIS Experience Builder

What's the catch?



Does not work offline

Widgets are based off Esri templates

Some coding required to customize widgets  
to make the application my own

# Platforms

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# Time Frame

Fall 2022

Fall 2023

● GEOG 863

● GEOG 868, 865

● GEOG 596B

Spring/Summer  
2023



Thank You

