

THE CARTOGRAPHIC SIDE OF THE WEB

Raluca Nicola – Web Cartographer at Esri

About me

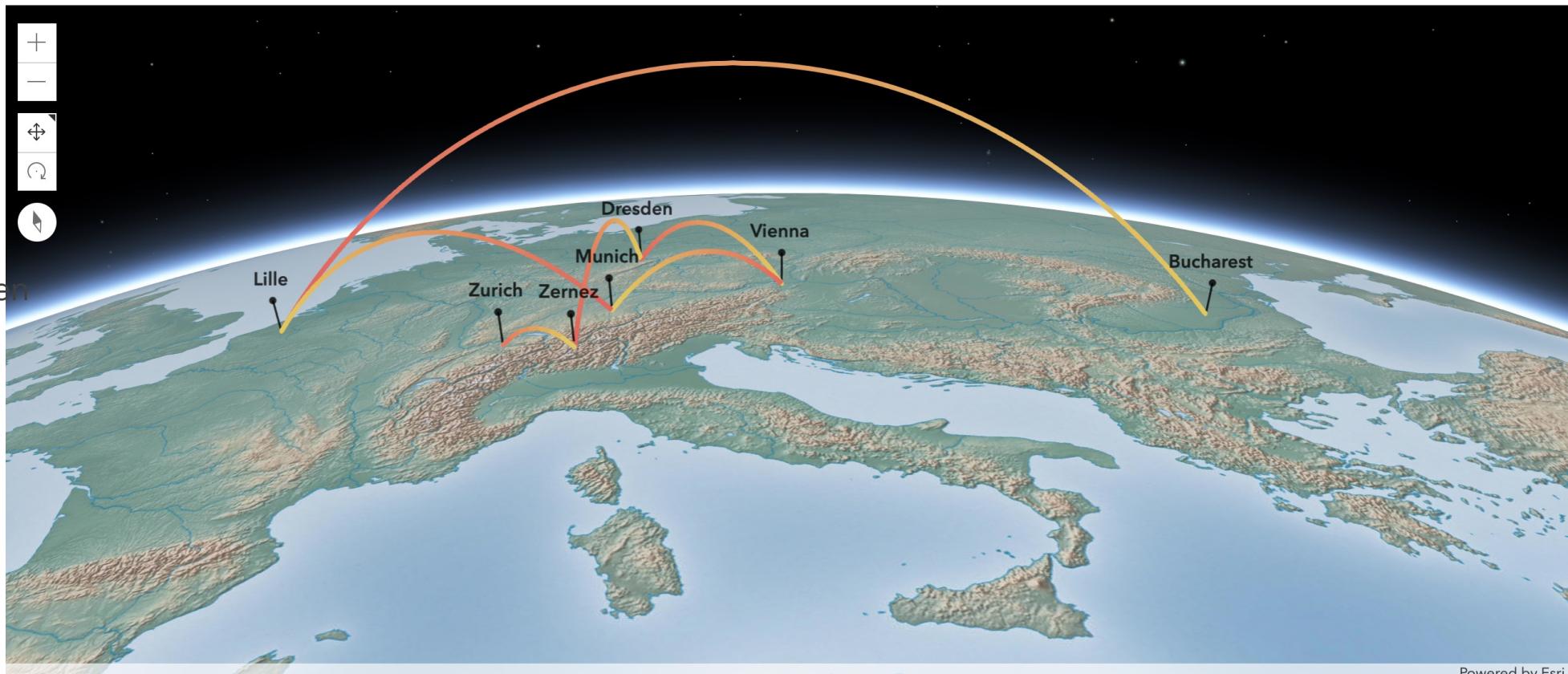
Bachelor in Geography,
University of Bucharest
Erasmus exchange, Lille
Technical University

International Master of
Cartography,
Technical Universities of
Munich, Vienna and Dresden

GIS Internship, Swiss
National Park

Teaching Assistant,
Cartography Institute ETH
Zurich

Cartographer, Esri R&D
Center Zurich



My daily work

Build custom web mapping
prototypes and demos as
part of the Application
Prototype Lab team

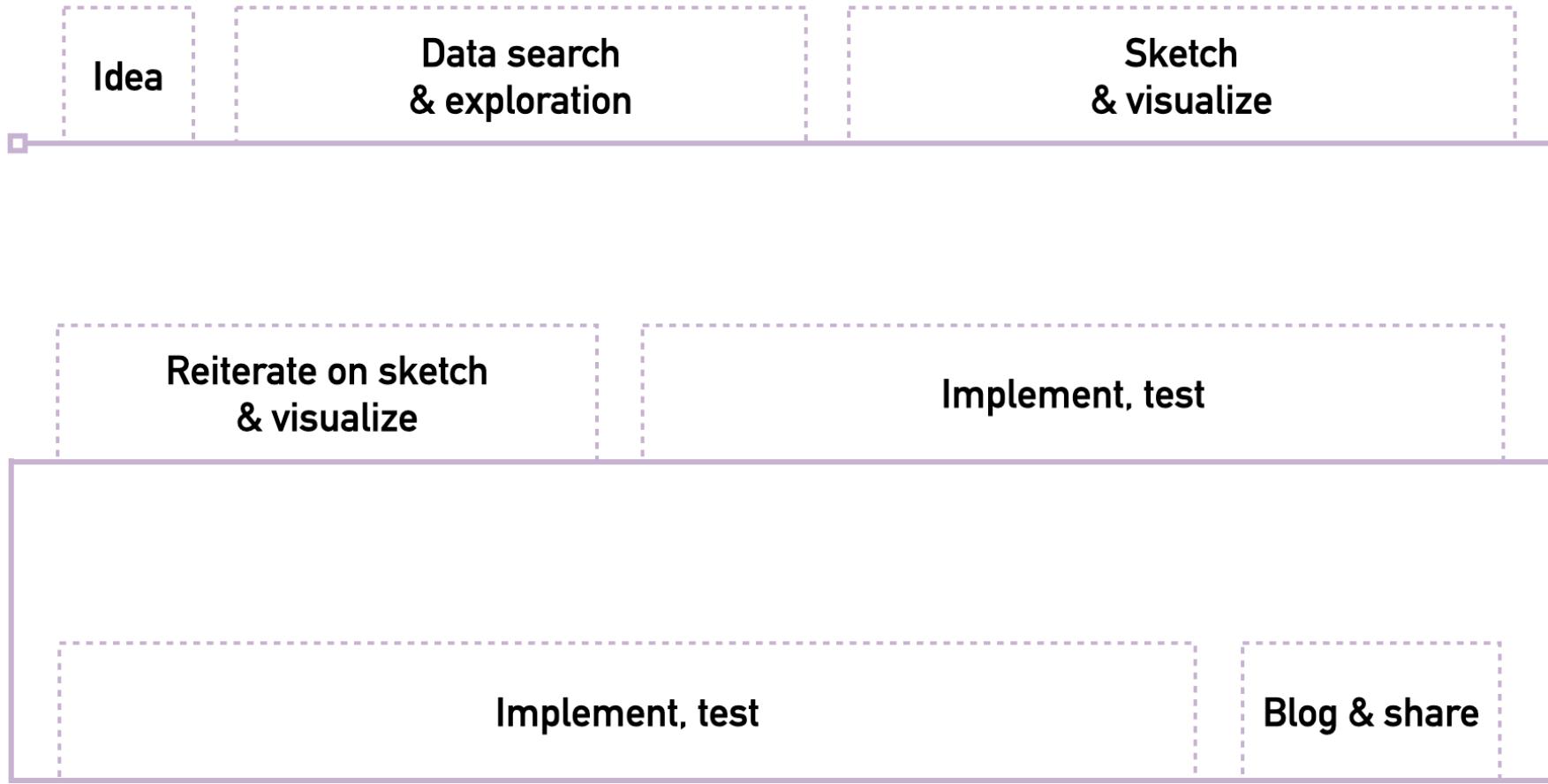


 The Five Deeps A 3D interactive web map of the deepest points in each of the five oceans. View item details	 Building Reach Analysis Use Line-of-Sight analysis to calculate locations on building facades reached by various types of fire truck ladders. View item details	 Let's Go Shopping Use JS API blendModes to dynamically display different basemaps over an area of interest and list OSM shops within that area of interest. View item details	 Coastal eutrophication Eutrophication is a harmful process driven by enrichment of water by nutrients and leading to increased biomass of algae and water quality degradation. This application displays the location... View item details	 Compare Land Cover Change Display the land use/land cover timeseries layer derived from ESA Sentinel-2 imagery at 10m resolution, then compare the change between any two years from 2017-2021. View item details	 Dangermond Preserve Virtual Tour Lidar provides a fascinating glimpse into the landscape of the Jack and Laura Dangermond Preserve. Virtually tour the preserve by travelling over pre-defined routes, interesting... View item details	 Atmospheric measurements World map displaying atmospheric measurements of pressure and temperature. Dataset derived from radio occultation data acquired in 2019 by GeoOptics, Inc. View item details
 Satellite Explorer Learn how we use satellites, discover major satellite constellations, and explore various types of orbits with this interactive 3D visualization of active satellites orbiting the Earth. View item details	 Stad Ship Tunnel Visualizing in 3D the Stad ship tunnel in Vestland County, Norway using configured scene viewpoints. View item details	 HYCOM Flow HYCOM provides five variables including Sea Surface Height as well as eastward velocity, northward velocity, in-situ temperature, and salinity at 40 vertical depth levels. View item details	 Benelux Tunnel A fly through the Benelux tunnel in Rotterdam, Netherlands. Point cloud data of Schiedam provided by Cyclomedia. View item details	 Viewshed Overlays Calculate viewshed overlapping areas by interactively setting observer locations in the view, and then toggle individual analysis results to gain further understanding. View item details	 CDC's Social Vulnerability Index 2018 Discover the CDC's Social Vulnerability Index 2018. Every community must prepare for and respond to hazardous events, whether a natural disaster like a tornado or a disease outbreak, o... View item details	 Future Heat Events and Social Vulnerability 2018 Overlay NOAA projected heat events and CDC's Social Vulnerability Index (SVI) which uses U.S. Census data to determine the social vulnerability of every county. The SVI ranks... View item details
 Street Trees in NYC	 Landsat Lens	 Blue Light Analysis	 Sketch the city	 Globe of extremes	 Earthquakes Visualization	 Global Temperature Anomaly

Agenda

1. Workflow when creating maps
2. Idea > Data > Design > Implement > Test > Share
3. Examples

Workflow



Idea

Question

Example: where is the highest internet speed connection?

Inspiration

Example: a map you saw in a magazine or in a game

Personal curiosities

Example: where did James Bond travel so far?

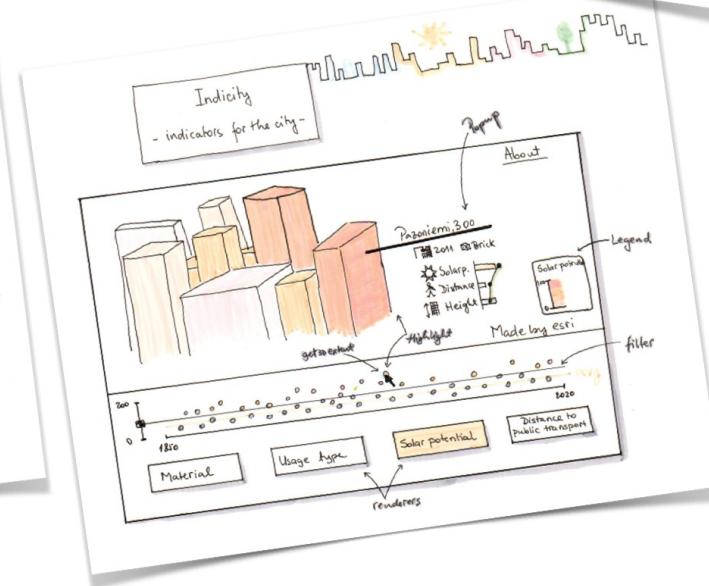
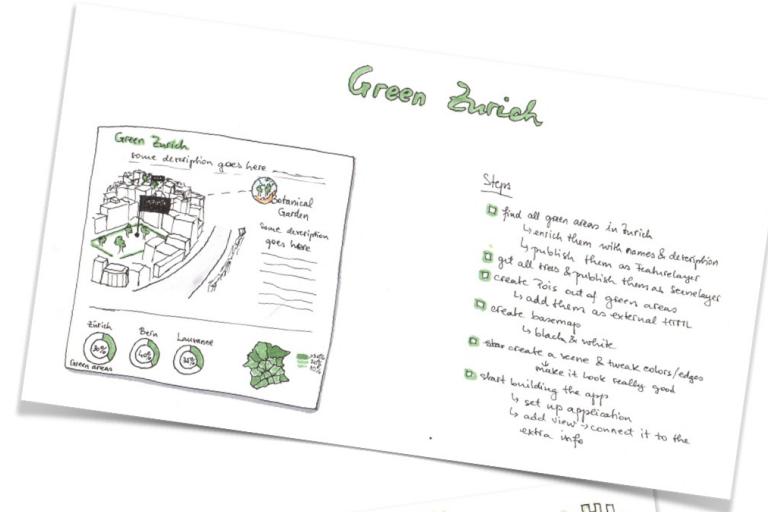
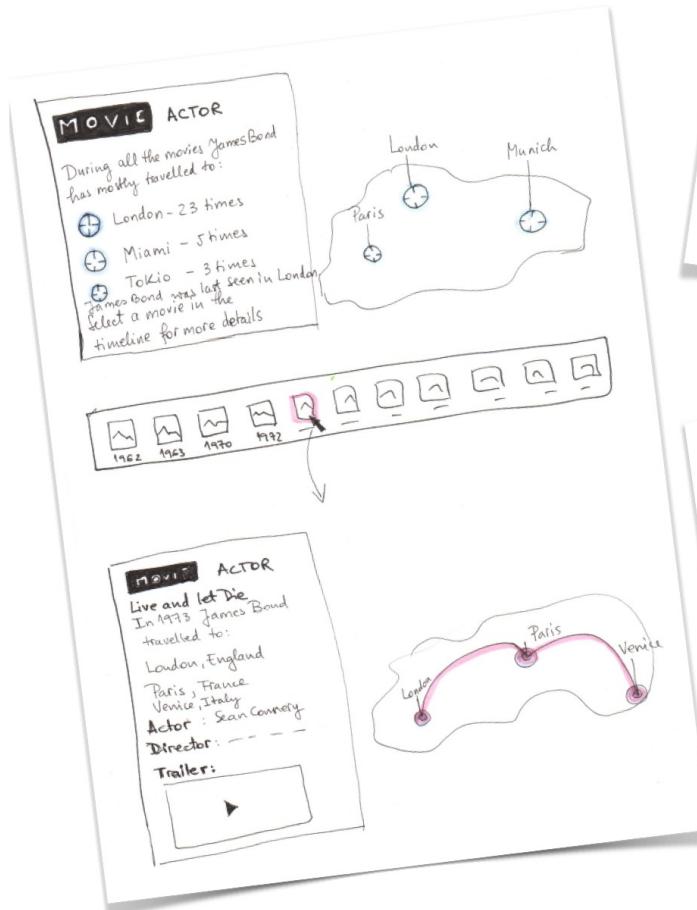
Data search and exploration

Get data from open data portals/parse it from websites



Explore data in ArcGIS Pro, QGIS, Excel, R, ArcGIS Online, Mapbox Studio

Sketch your ideas



Mapping libraries



Leaflet



ArcGIS API for JavaScript



Mapbox GL JS



D3



deck.gl



CesiumJS



ThreeJS



OpenLayers



HERE Maps API for JavaScript



Google Maps Platform – Maps JavaScript API



General visualization purpose



Mapping specific

Develop, test and share

code, code, 🍫, code

test, test

code, some more 🍫, code, code

show app to my colleagues and get feedback

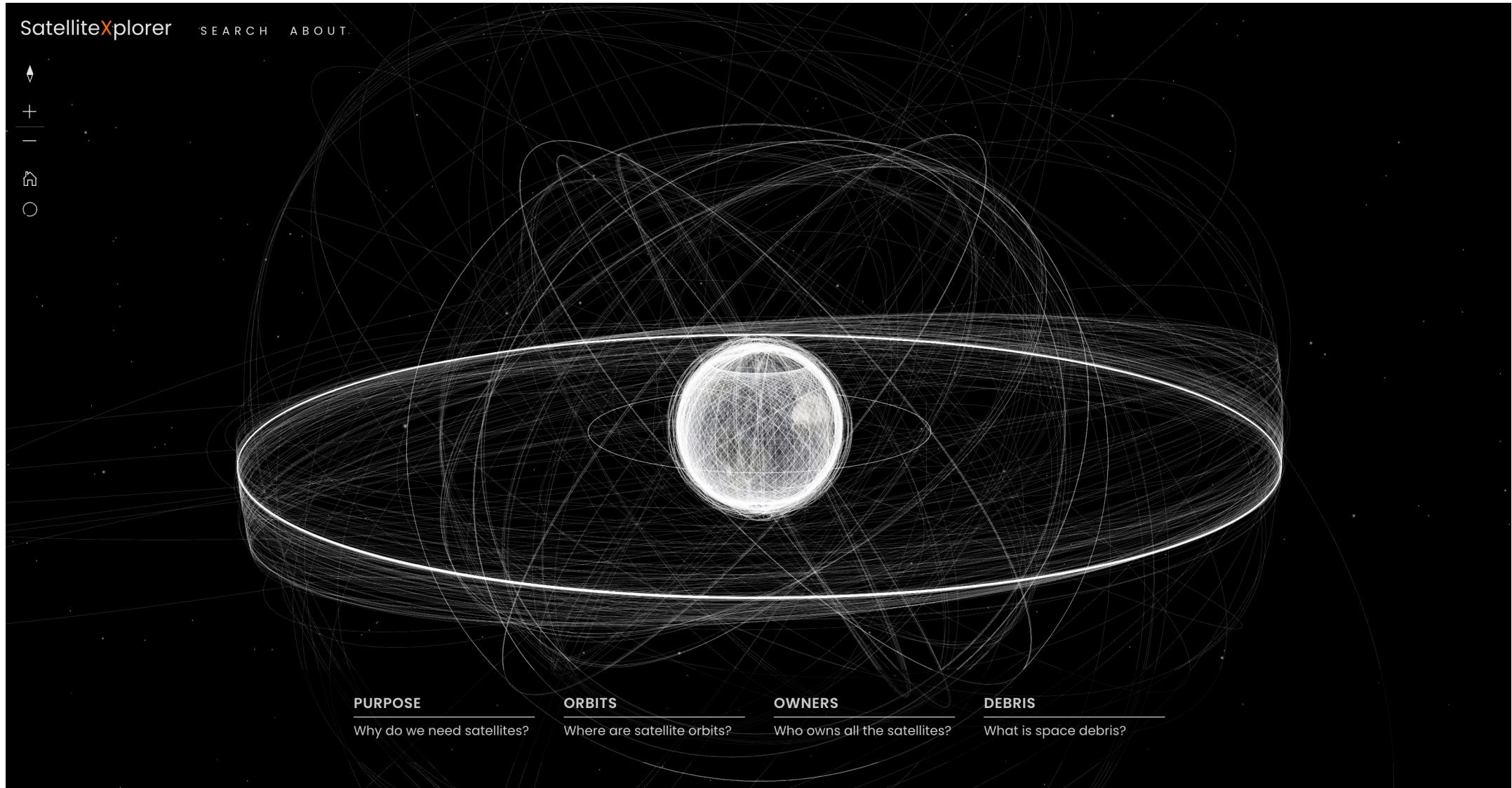
code, 🎯, code

some more feedback

some more code

deploy, write blog post and share with everyone 🎉🎊

Space - satellite explorer



<https://geoxc-apps.bd.esri.com/space/satellite-explorer/>

Satellite Explorer - idea

The screenshot shows a Microsoft Word document window. The title bar reads "Requirements" and "Saved". The ribbon menu is visible with tabs like Home, Insert, Draw, Design, Layout, References, Mailings, Review, Share PDF for viewing or commenting, Tell me, Share, Editing, and Comments. The main content area contains the following text:

REQUIREMENTS

Link to the app: <https://geoxc-apps.bd.esri.com/space/satellite-explorer/>

REQUIREMENTS

Main goal is to teach users about satellites:

- Where are they located in the atmosphere?
- How many satellites are in space?
- What are the various types of satellites? (ex. classification based on their orbit type)
- What are they used for?
- How much space debris is out there?
- Famous satellites – ISS, Chinese anti-satellite test ([Fēngyún 1C Debris](#)) – try to show the 3D model too, to give a feeling for what it looks like
- Famous constellations – GPS, Landsat, [Starlink](#)... - what are they used for, when were they launched.
- Oldest satellite still in orbit

The app should work on both desktop and mobile.

Nice to have:

- Animated satellites – probably need to use [ThreeJS](#)?
- Having deep links to specific satellites/constellations
- “Satellites in the News” section – how to add a news feed?
- Display satellites using a 3D model – NASA has 3D models for their satellites:
<https://nasa3d.arc.nasa.gov/models>

UPDATE 28.04.2022

Page 1 of 9 1156 words English (United States) Focus 170%

Satellite Explorer – data



Climate Energy Transportation Food Nuclear Weapons Science & Democracy

REPORTS & MULTIMEDIA / FEATURE

UCS Satellite Database

In-depth details on the 5,465 satellites currently orbiting Earth, including their country of origin, purpose, and other operational details.

Published Dec 8, 2005 | Updated May 1, 2022

- [Database \(Excel format\)](#)
- [Database \(text format\)](#)



Orbital Data ▾ Satellite Catalog ▾ SOCRATES Space Data ▾ Library ▾

Donate



NORAD GP Element Sets Current Data

Current as of 2022 Sep 28 16:05:25 UTC (Day 271)

A New Way to Obtain GP Data (aka TLEs)

[TLE/3LE](#) [2LE](#) [OMM XML](#) [OMM KVN](#) [JSON](#) [JSON PP](#) [CSV](#)

Supplemental GP Data

Special-Interest Satellites

Last 30 Days' Launches

Space Stations

100 (or so) Brightest

Active Satellites

Analyst Satellites

Russian ASAT Test Debris (COSMOS 1408)

Chinese ASAT Test Debris (FENGYUN 1C)

IRIDIUM 33 Debris

COSMOS 2251 Debris

Weather & Earth Resources Satellites

Weather

NOAA

GOES

Earth Resources

Search & Rescue (SARSAT)

Disaster Monitoring

Tracking and Data Relay Satellite System (TDRSS)

ARGOS Data Collection System

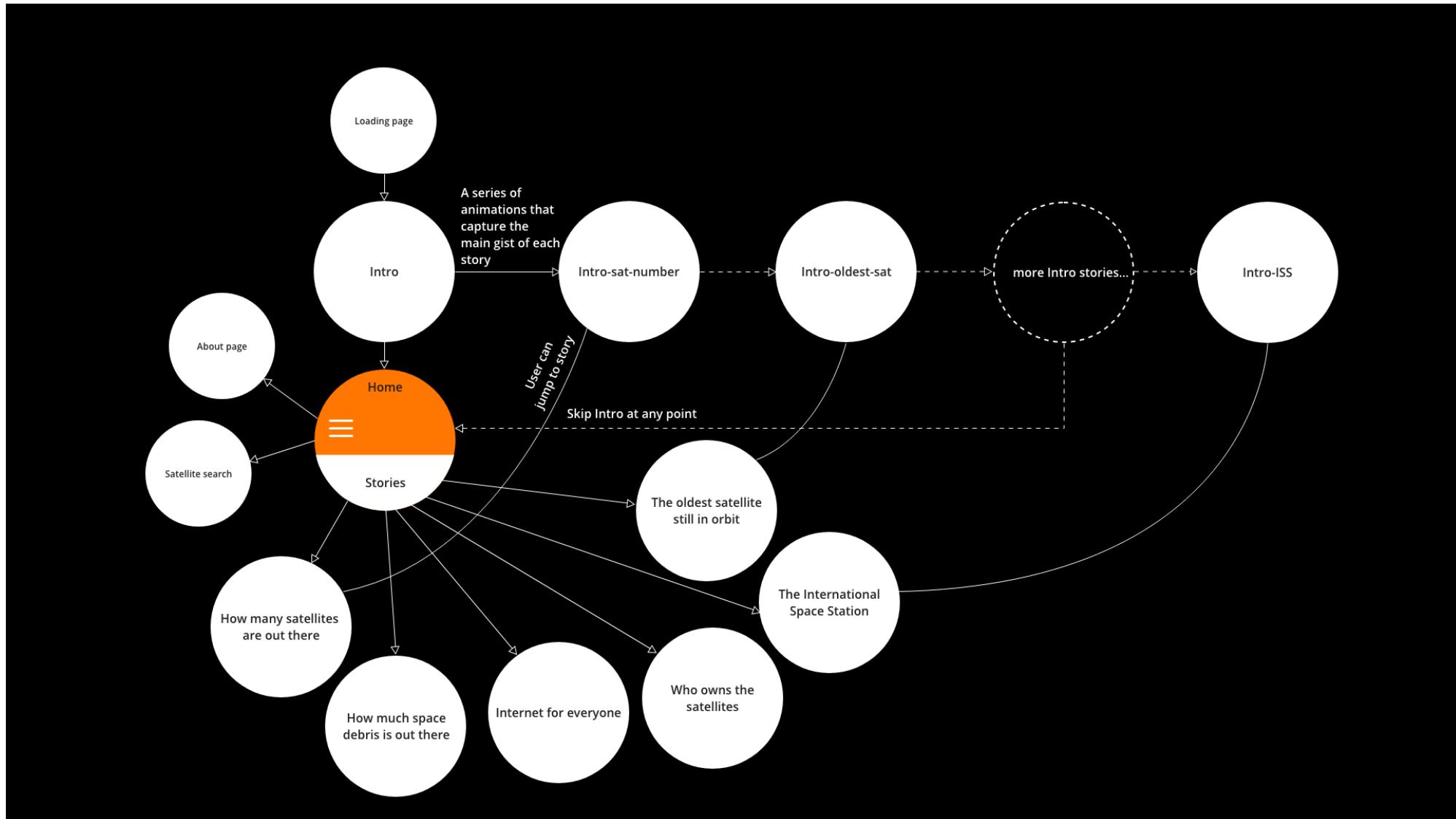
Planet

Spire

Communications Satellites

Active Geosynchronous

Satellite Explorer - sketch



Satellite Explorer - sketch

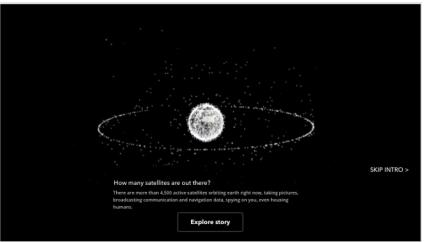
Loading



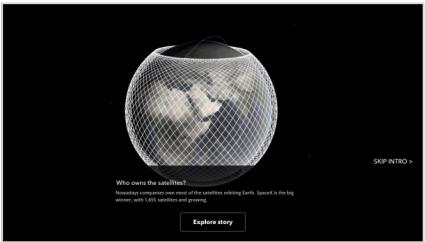
Intro



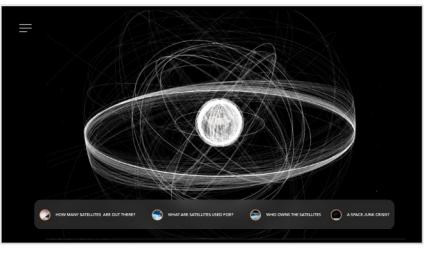
Intro – satellite – number



Intro – satellite – owners

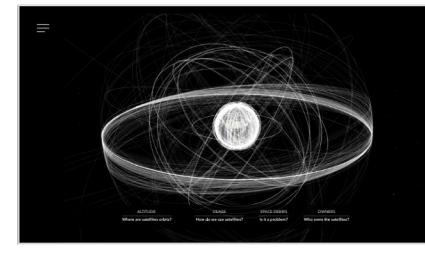


Home



Home, iPhone 12

Home – 1

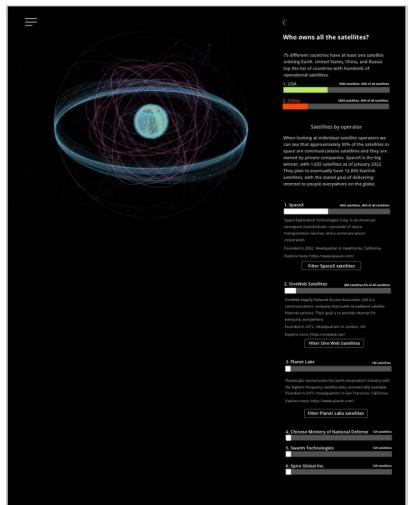


Home, iPhone 12 – 1

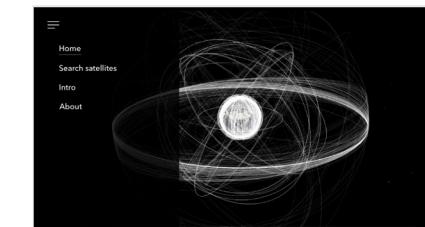
Story - satellite usage



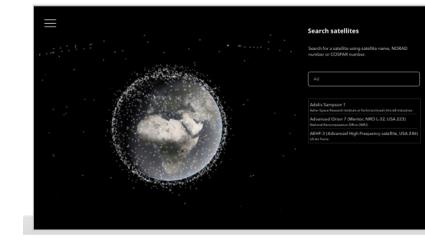
Story - satellite owners



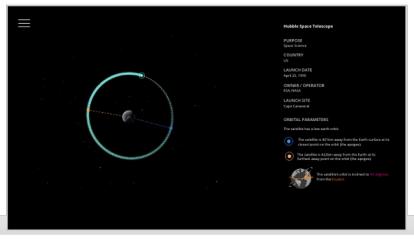
Menu



Search



Satellite View

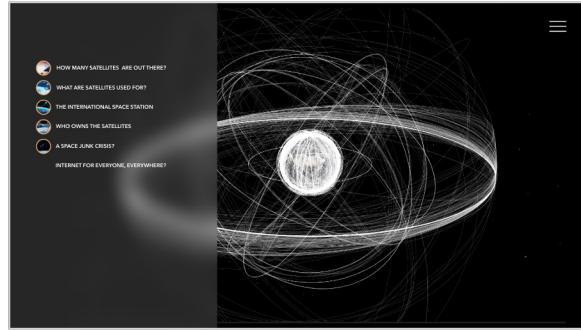


Satellite Explorer - sketch

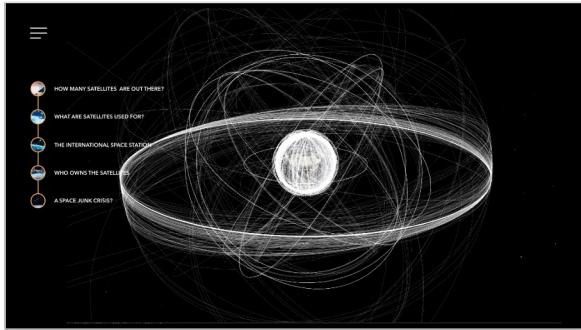
Home - version 1



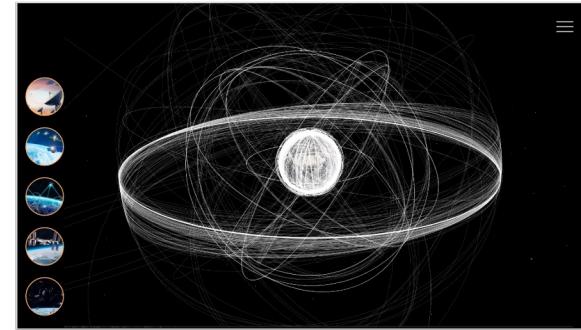
Home - version 2



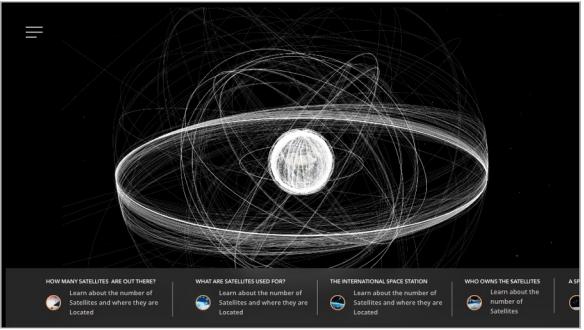
Home - version 2 - 4



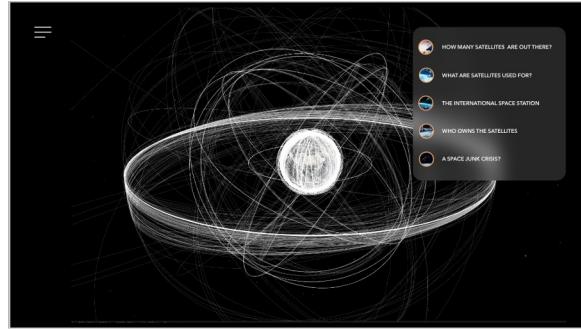
Home - version 3 - 2



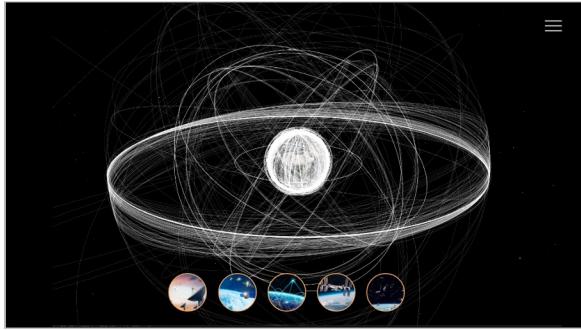
Home - version 2 - 1



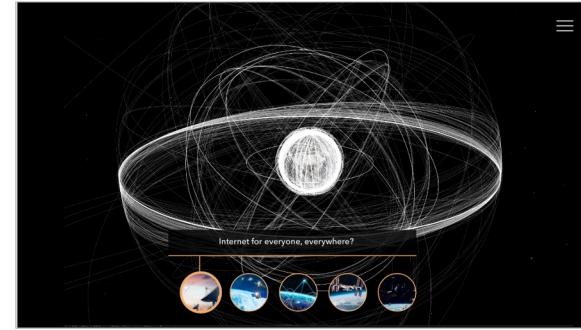
Home - version 2 - 2



Home - version 3



Home - version 3 - 1



Satellite Explorer - code

RalucaNicola / satellite-explorer Public

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main · satellite-explorer / package.json Go to file ...

RalucaNicola update api to version 4.23 Latest commit 6bf38fb on 22 Apr History

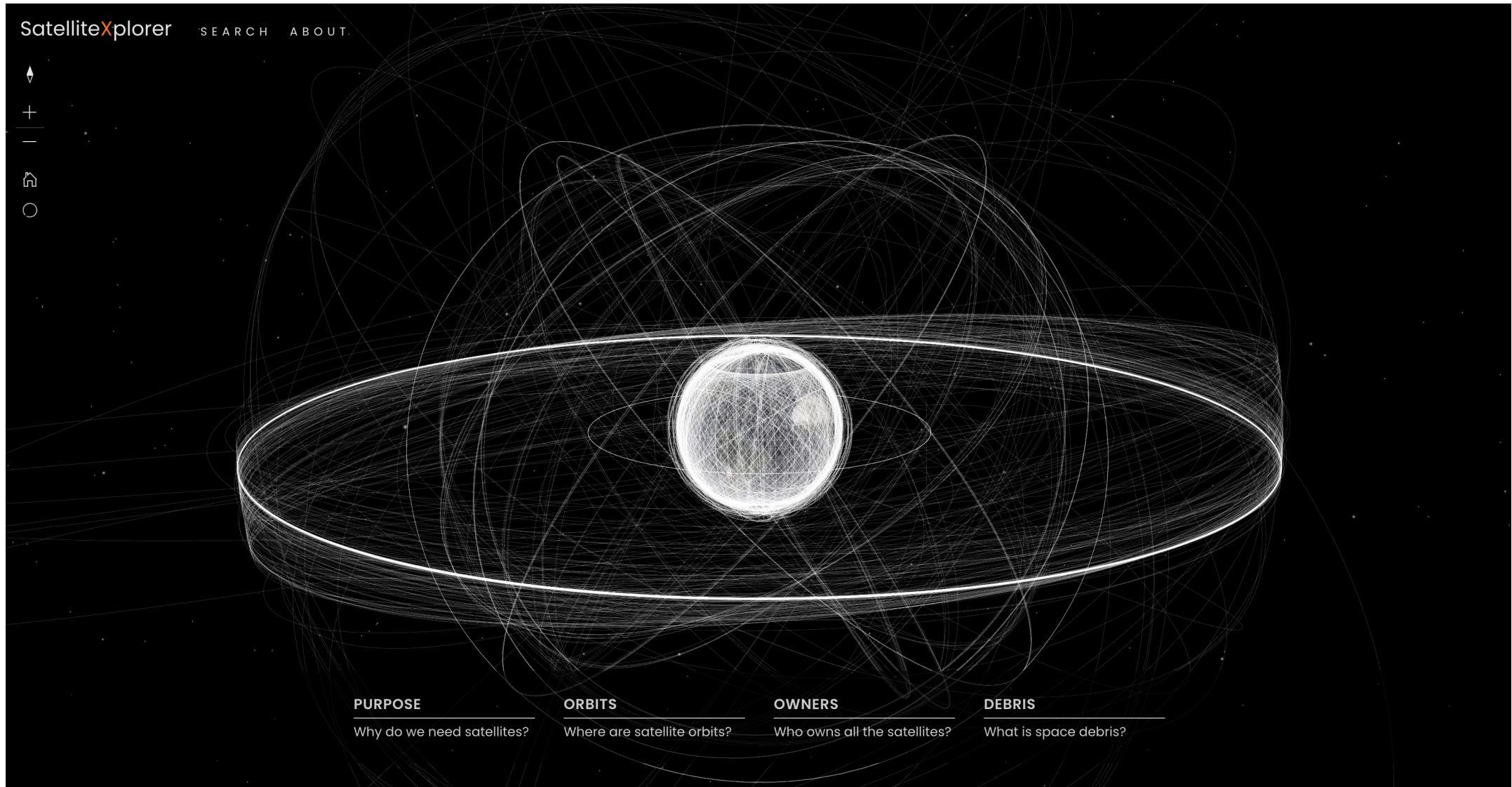
1 contributor

31 lines (31 sloc) | 642 Bytes Raw Blame ⌂ ⌂ ⌂

```
1  {
2    "name": "satellite-explorer",
3    "version": "1.0.0",
4    "description": "Explore and learn about satellites",
5    "scripts": {
6      "dev": "vite",
7      "build": "vite build"
8    },
9    "keywords": [
10      "arcgis-js",
11      "satellite",
12      "3D"
13    ],
14    "author": "Raluca Nicola",
15    "license": "MIT",
16    "devDependencies": {
17      "@vitejs/plugin-react": "^1.1.4",
18      "vite": "^2.7.13"
19    },
20    "dependencies": {
21      "@arcgis/core": "^4.23",
22      "d3-array": "^3.1.1",
23      "d3-scale": "^4.0.2",
24      "mobx": "^6.4.1",
25      "mobx-react": "^7.3.0",
26      "papaparse": "^5.3.1",
27      "react": "^17.0.2",
28      "react-dom": "^17.0.2",
29      "satellite.js": "^4.1.3"
30    }
}
```

<https://github.com/RalucaNicola/satellite-explorer/>

Satellite Explorer - demo



<https://geoxc-apps.bd.esri.com/space/satellite-explorer/>

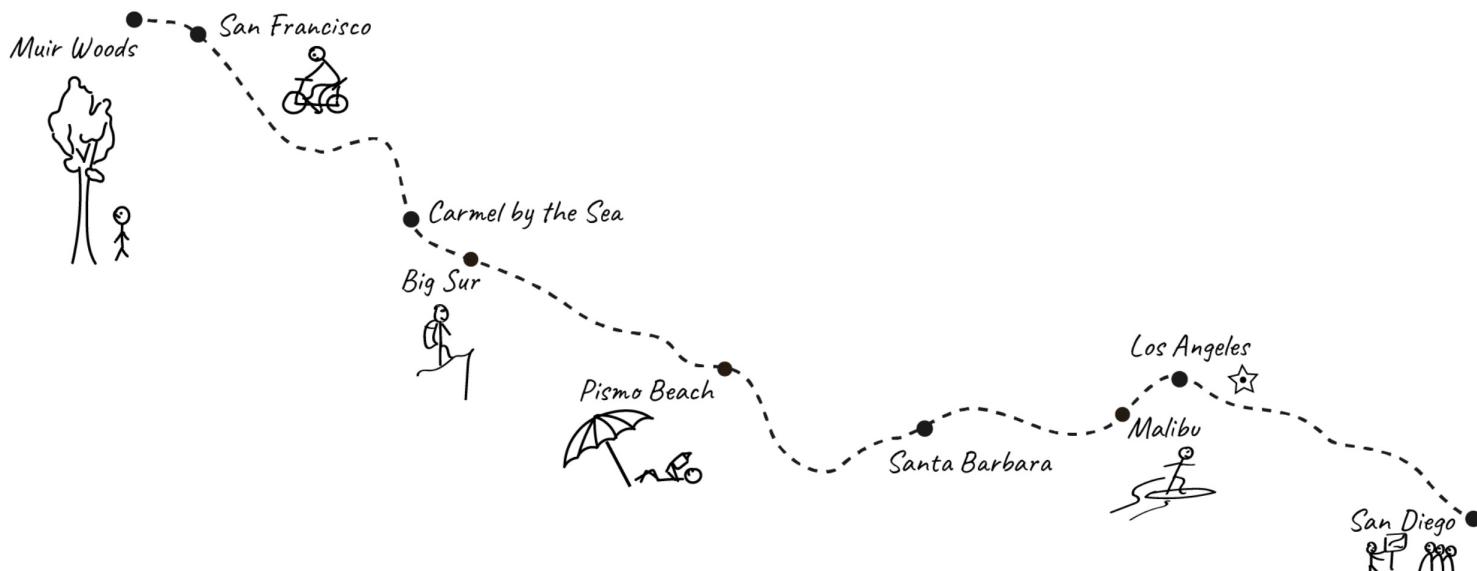
Personal - holiday map

Raluca's Californian Adventure

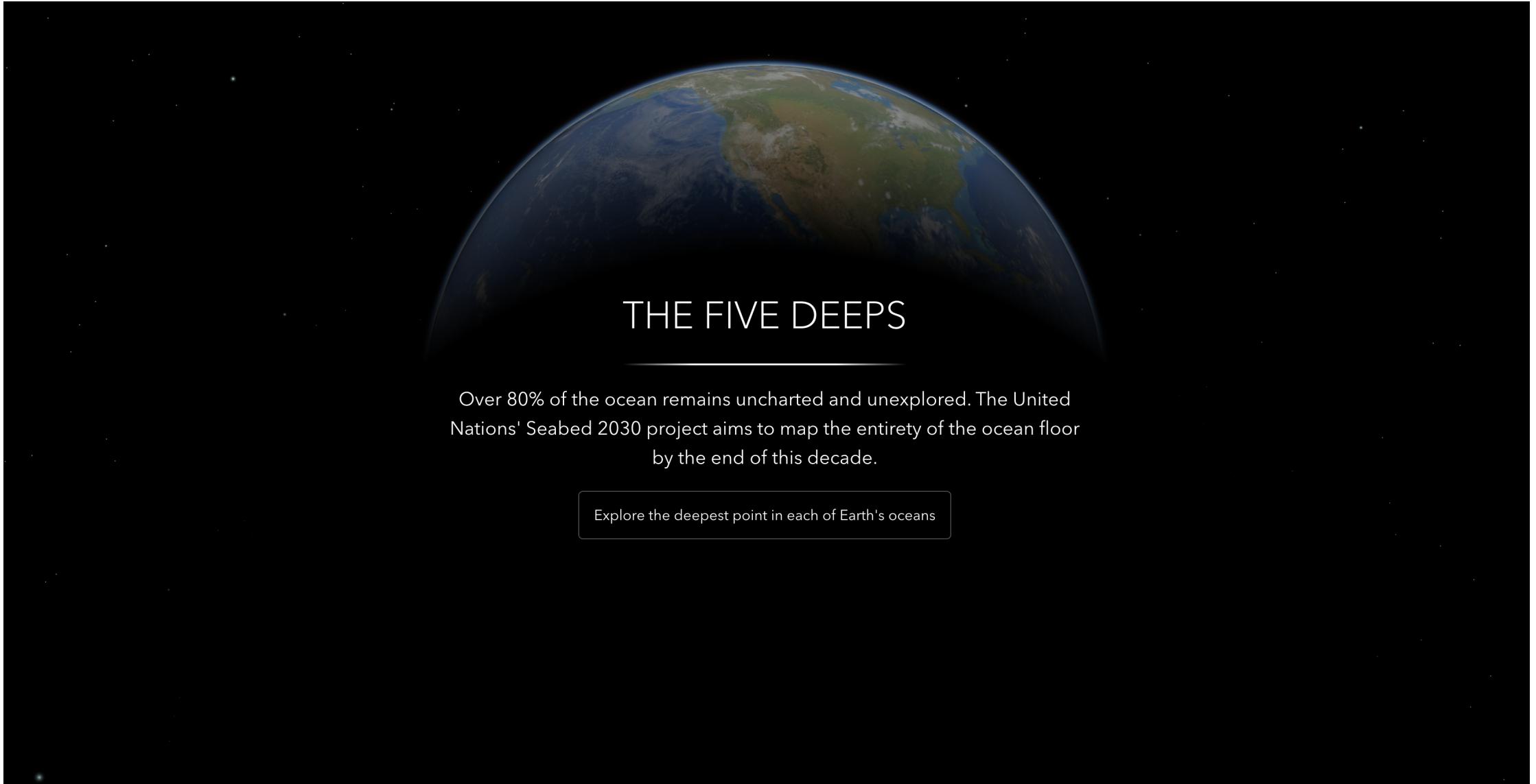


I spent July 2022 in California, working in Redlands and travelling from San Diego to San Francisco.

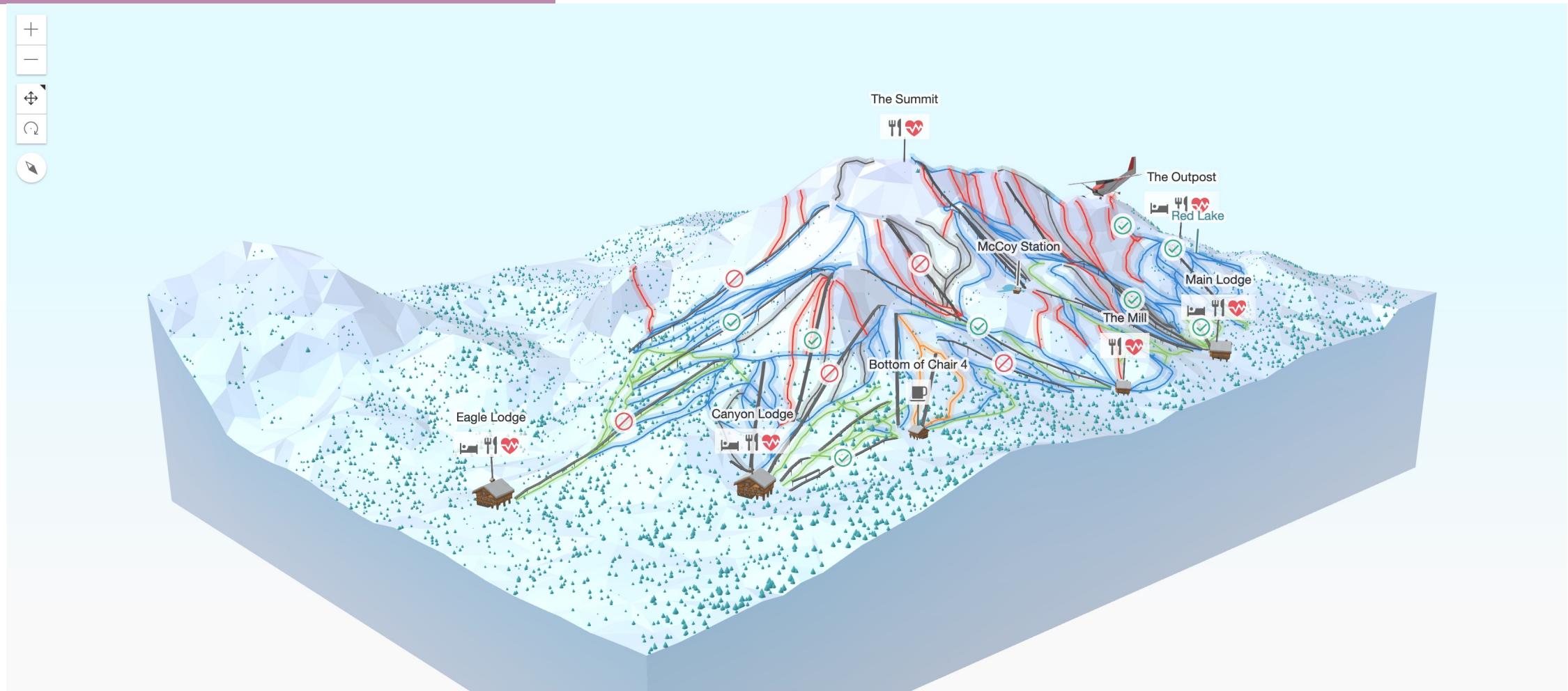
This story map shows the highlights of my journey.



<https://ralucanicolaj.github.io/holiday-map/>



Game – ski resort map



Mammoth ski resort map

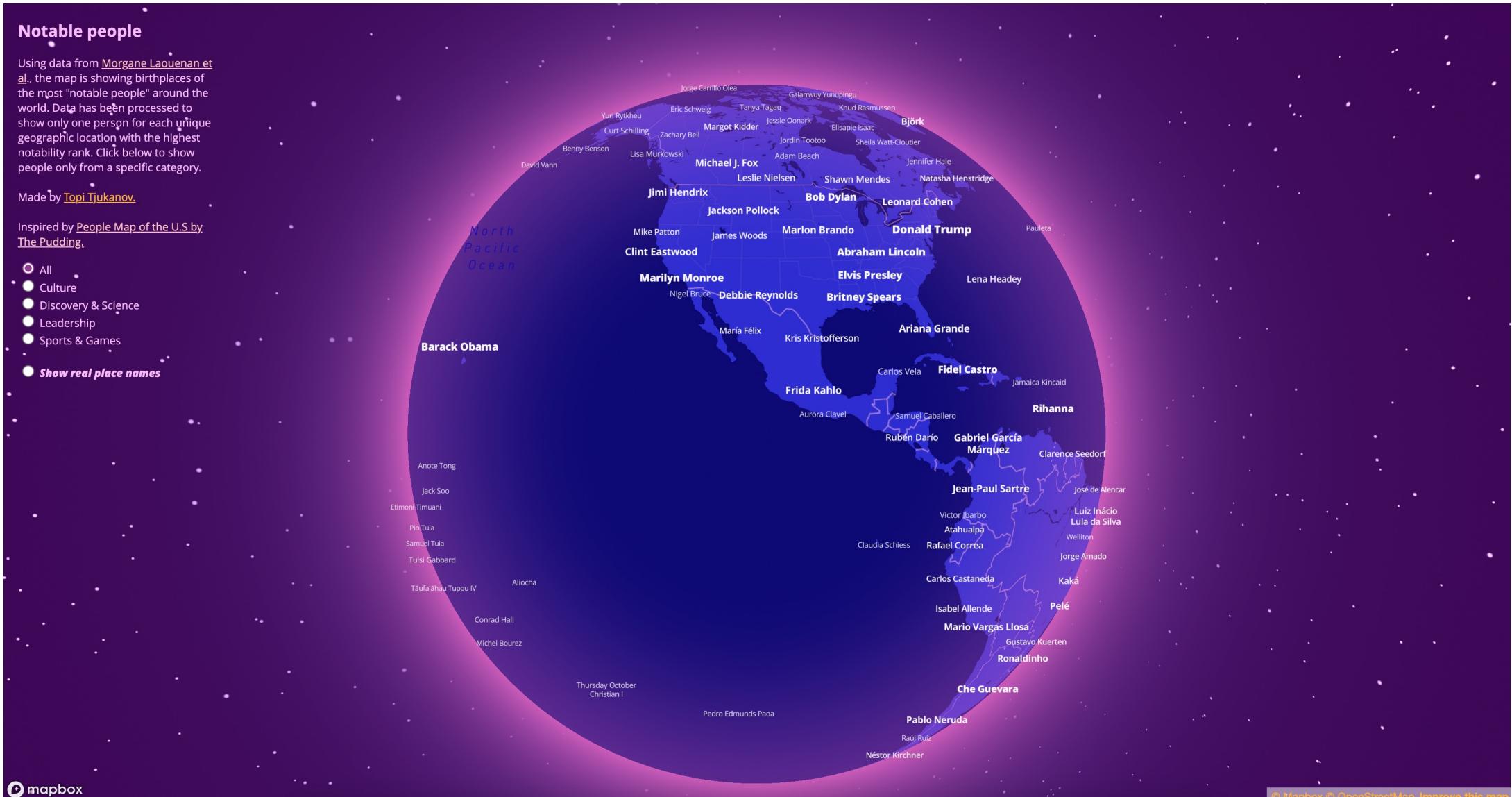
This is an interactive map of the Mammoth ski resort, built for demo purposes only. Some fun things you could do: [fly the plane](#) or [make it snow](#). Ski slopes are colored based on their difficulty: **easiest**, **easy**, **difficult**, **very difficult**, **adventure parks**. Some ski lifts are open: and some are closed: .

Application built with [ArcGIS for JavaScript](#). Credits to [Philip Mielke](#) for the trees, ski trail and ski lifts data. Inspired by [Skiguide Zermatt](#) and the [official Mammoth ski resort map](#). 3D models from Google Poly: [Chalet](#) and [Small airplane](#).

Powered by Esri

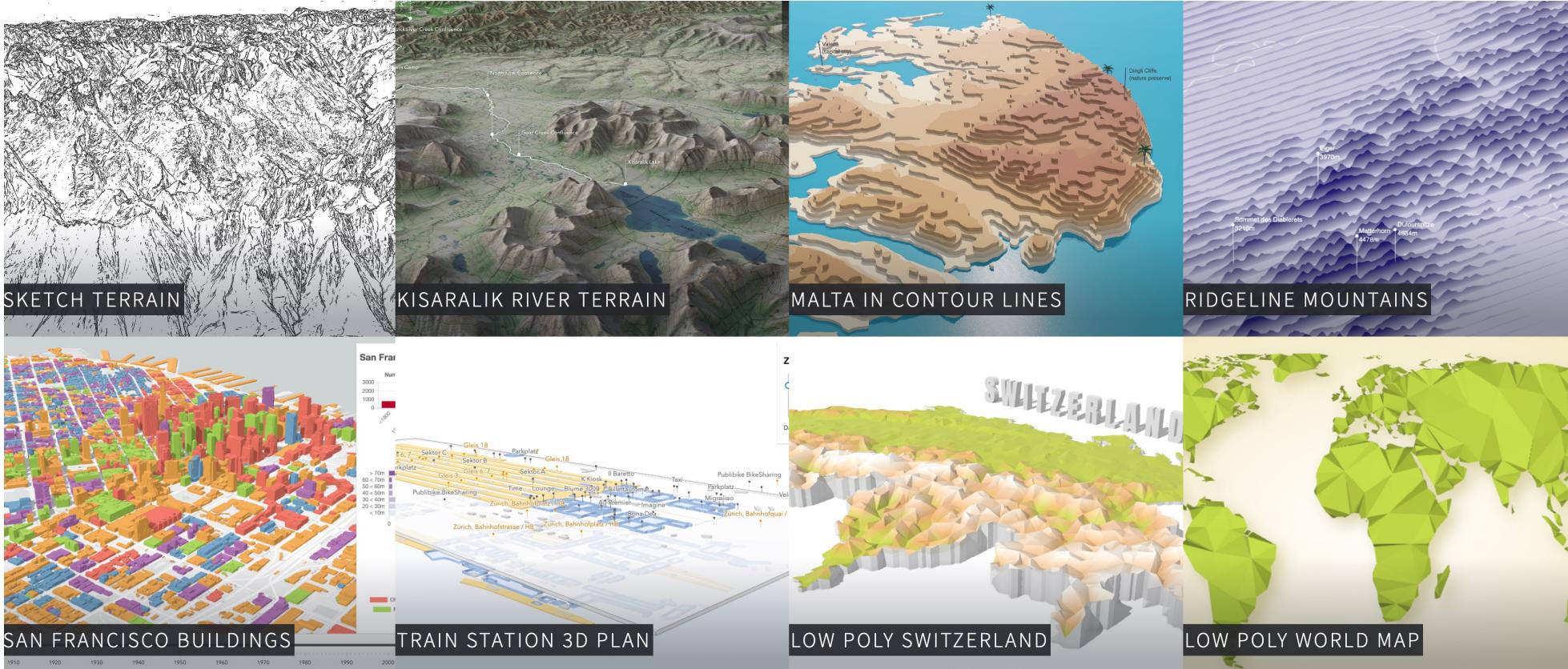
<https://ralucanicola.github.io/ski-resort-map/>

Entertainment – notable people



<https://tjukanovt.github.io/notable-people>

Experimental



https://ralucanicola.github.io/JSAPI_demos/