



2D Visualization with the ArcGIS API for JavaScript

Kristian Ekenes

Jeremy Bartley

2018 Esri DEVSummit Conference | Palm Springs, CA

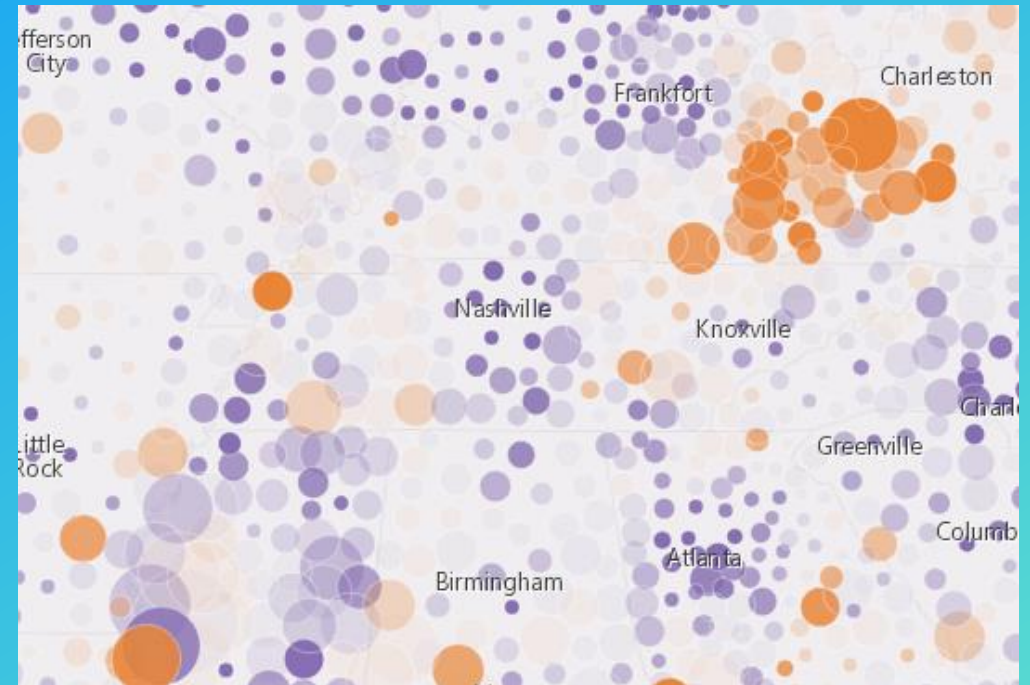
API Overview

Renderers, Symbols, etc.



What can we visualize?

- Where?
- What?
- How much?
- When?
- Multivariate



FeatureLayer

MapImageLayer

Data

CSVLayer

StreamLayer

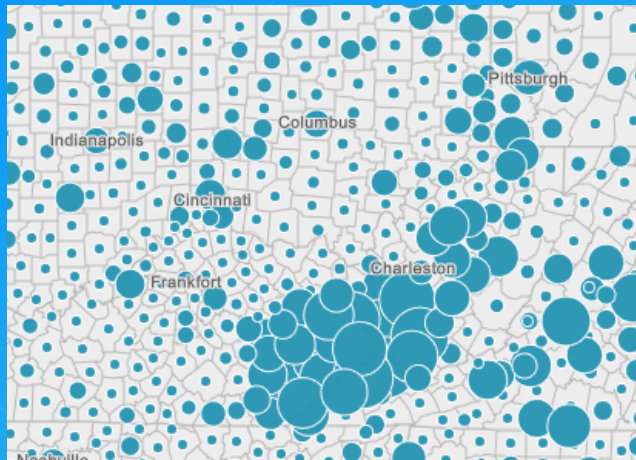
Symbols



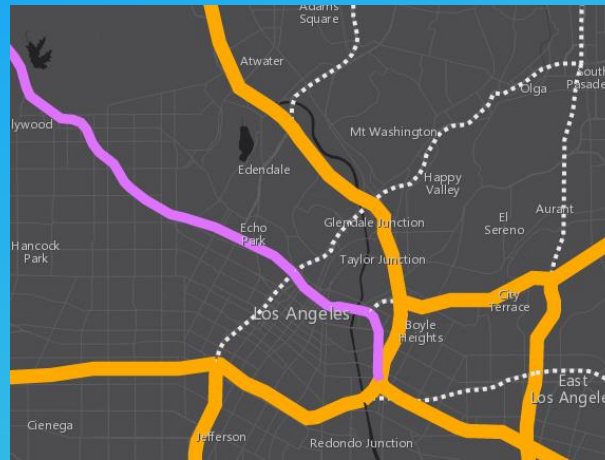
Symbols

based on geometry type

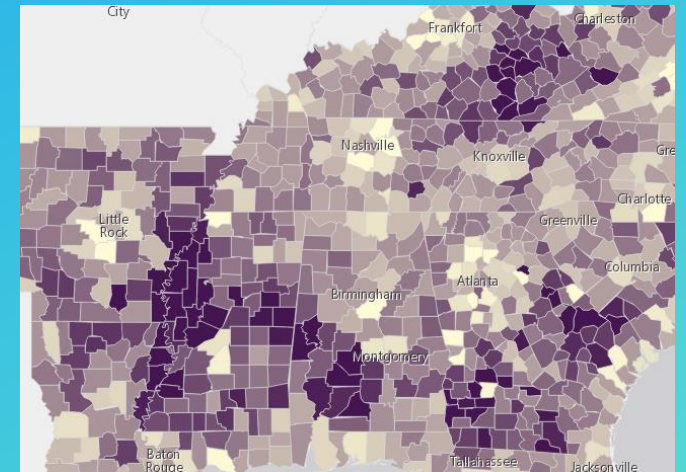
Points



Lines



Polygons



SimpleMarkerSymbol
PictureMarkerSymbol

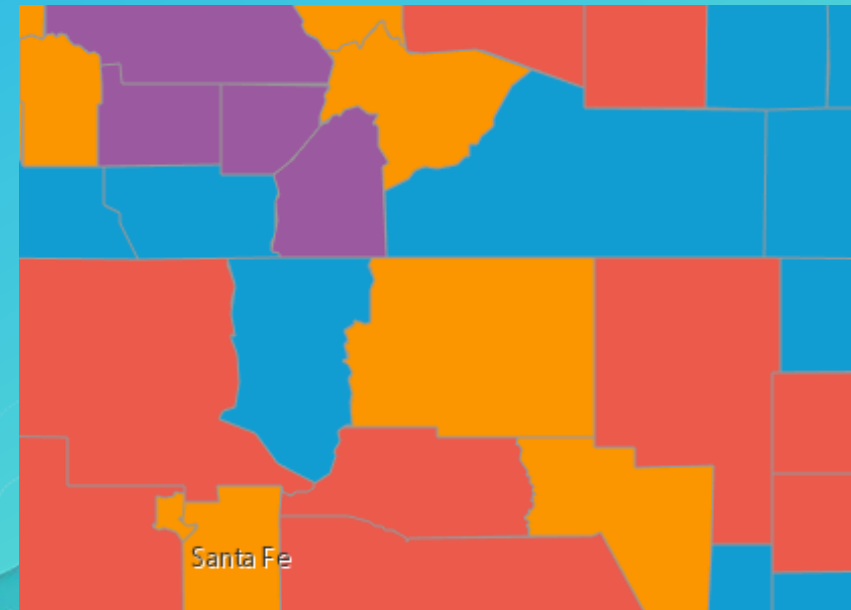
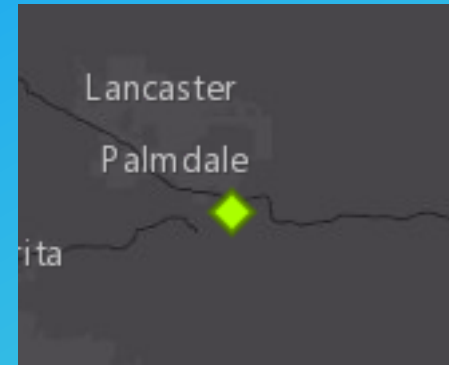
SimpleLineSymbol

SimpleFillSymbol
PictureFillSymbol

Symbols

```
var marker = new SimpleMarkerSymbol({
  style: "diamond",
  outline: {
    width: 1.75,
    color: [76, 115, 0, 0.75]
  },
  color: [170, 255, 0, 1]
});
```

```
var fill = new SimpleFillSymbol({
  outline: {
    width: 2.75,
    color: [0, 77, 168, 1]
  },
  color: [115, 178, 255, 0.72]
});
```



Data-driven visualization

- Field value(s)

TOTAL_POP

- Arcade expression

Round((\$feature.BACHELOR + \$feature.MASTER) / \$feature.POP_25UP);

- JavaScript function

```
function (graphic){  
  return graphic.attributes.POP_DENSITY;  
}
```

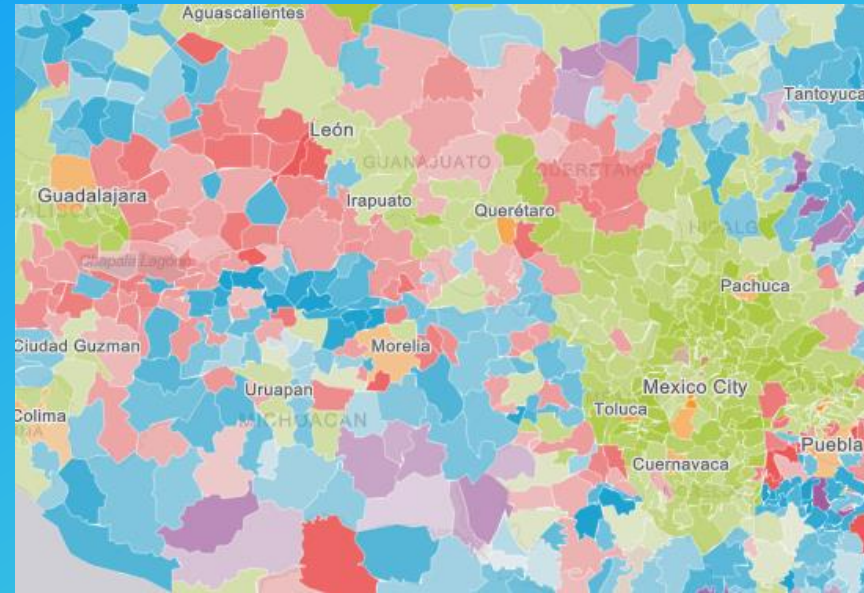

Renderers



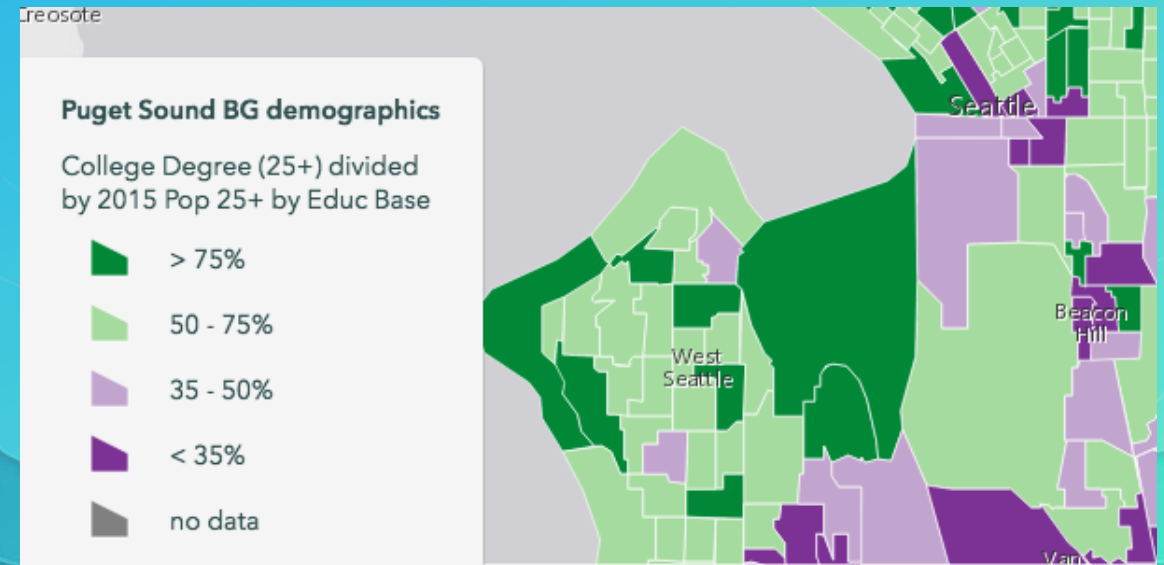
Renderers

UniqueValueRenderer

SimpleRenderer



ClassBreaksRenderer



Renderers

SimpleRenderer

```
layer.renderer = new SimpleRenderer({  
  symbol: createSymbol("#ff002e")  
});
```

```
var renderer = new ClassBreaksRenderer({  
  field: "population",  
  classBreakInfos: [{  
    minValue: 0,  
    maxValue: 2500,  
    symbol: createSymbol("#f8e3c2", 3)  
  }, {  
    minValue: 2500,  
    maxValue: 15000,  
    symbol: createSymbol("#e5998c", 6)  
  }, {  
    minValue: 15000,  
    maxValue: 75000,  
    symbol: createSymbol("#d86868", 12)  
  }, {  
    minValue: 75000,  
    maxValue: 10000000,  
    symbol: createSymbol("#9b3557", 22)  
  }]  
});
```

UniqueValueRenderer

```
var renderer = new UniqueValueRenderer({  
  valueExpression: "var parties = [$feature.MP06025a_B," +  
    "$feature.MP06024a_B, $feature.MP06026a_B];" +  
    "return Decode( Max(parties)," +  
    "$feature.MP06025a_B, 'republican'," +  
    "$feature.MP06025a_B, 'democrat'," +  
    "$feature.MP06025a_B, 'independent'," +  
    "'n/a' );",  
  valueExpressionTitle: "Winner of the election",  
  uniqueValueInfos: [{  
    value: "democrat",  
    symbol: createSymbol("#00c3ff"),  
    label: "Democrat"  
  }, {  
    value: "republican",  
    symbol: createSymbol("#ff002e"),  
    label: "Republican"  
  }, {  
    value: "independent",  
    symbol: createSymbol("#faff00"),  
    label: "Independent/other party"  
  }]  
});
```

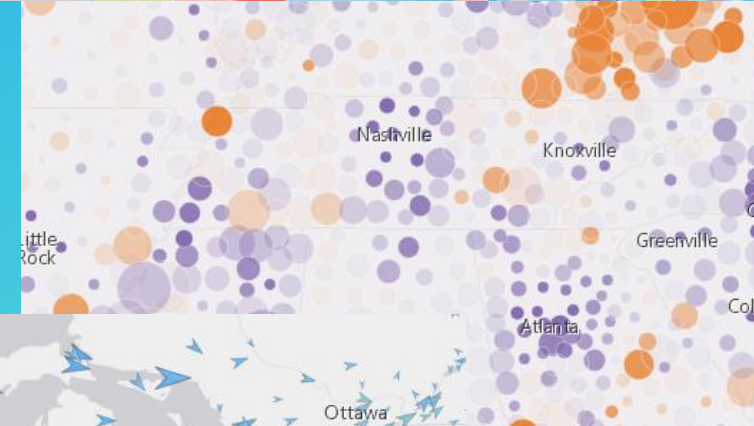
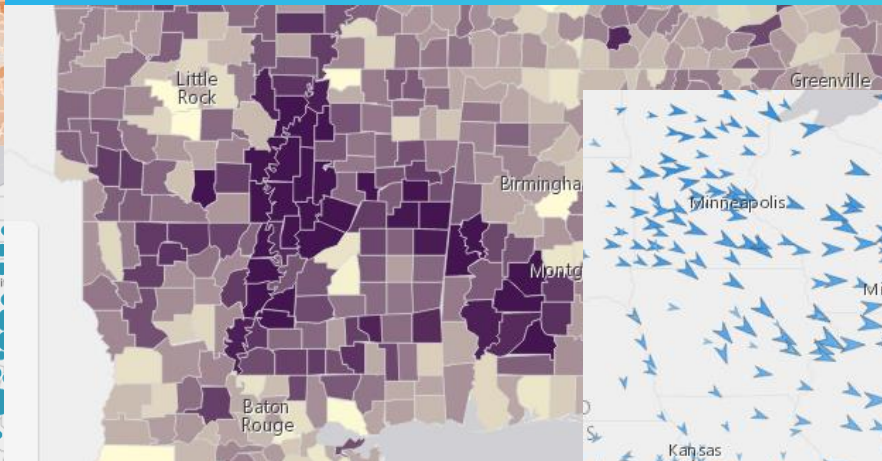
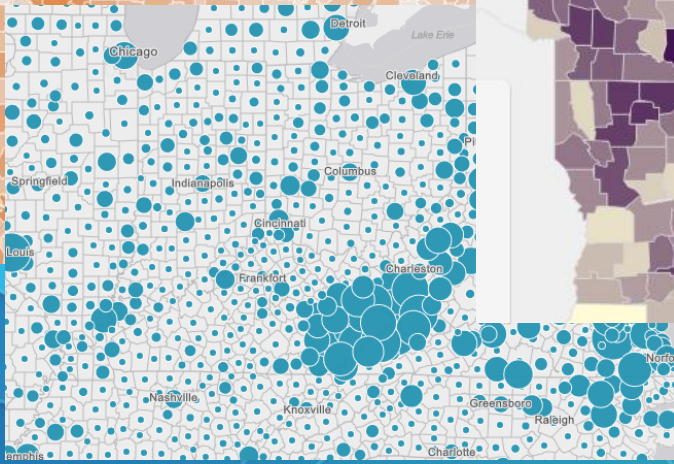
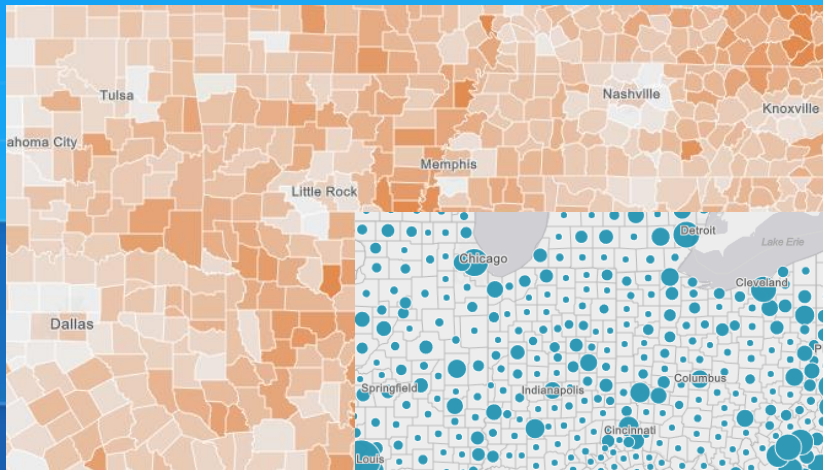
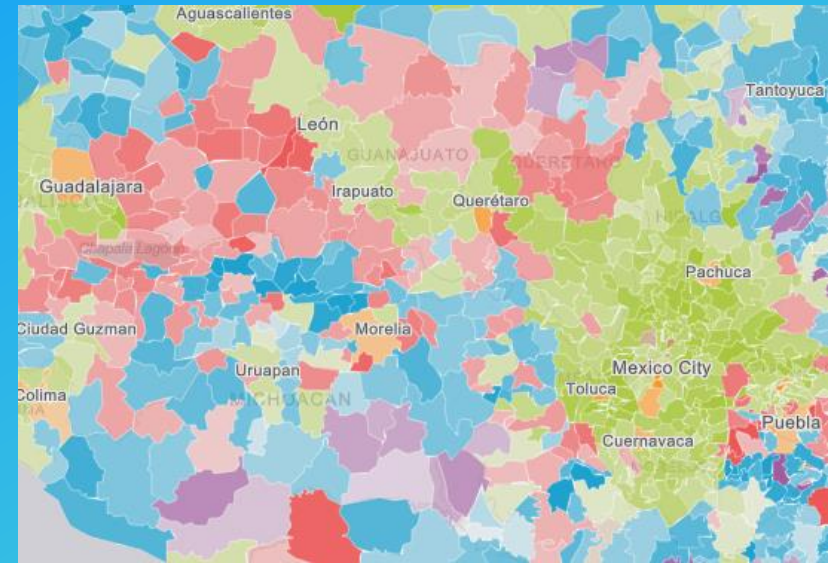
ClassBreaksRenderer

Renderers

Visual Variables

- Color
- Size
- Opacity
- Rotation

- A property of the renderer
- For numeric data-driven continuous visualizations

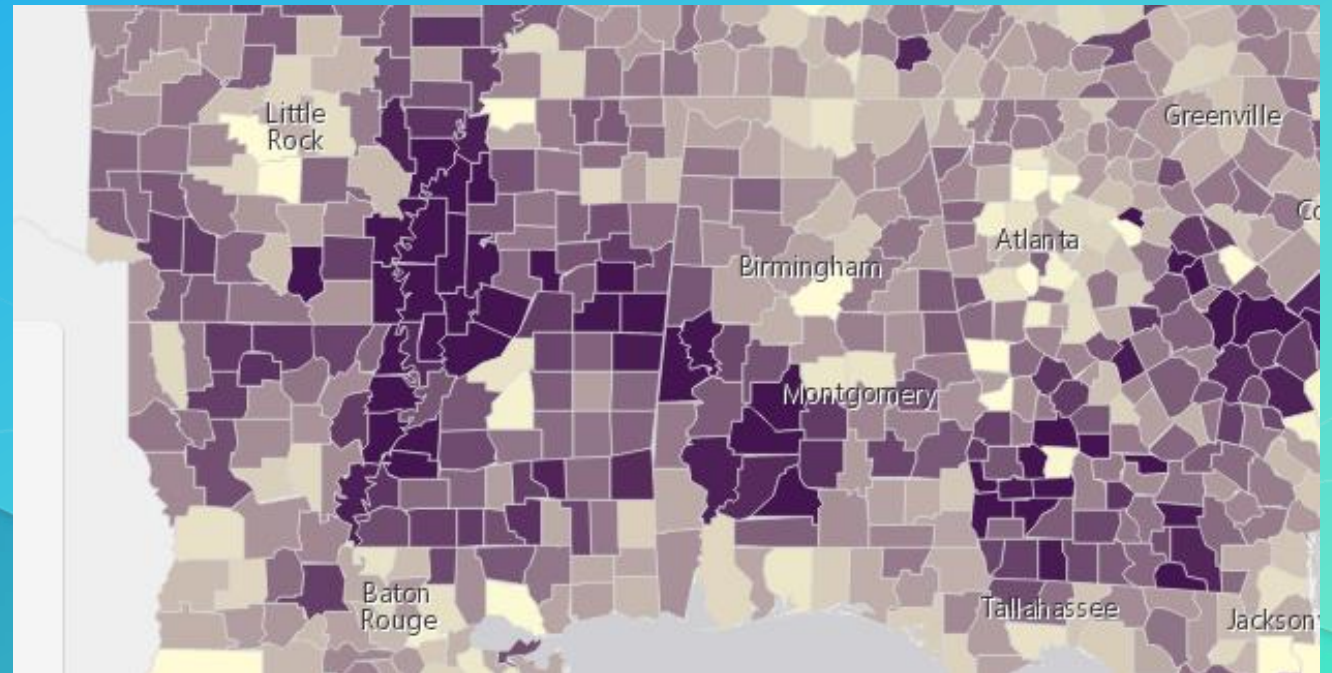


Renderers

Visual Variables

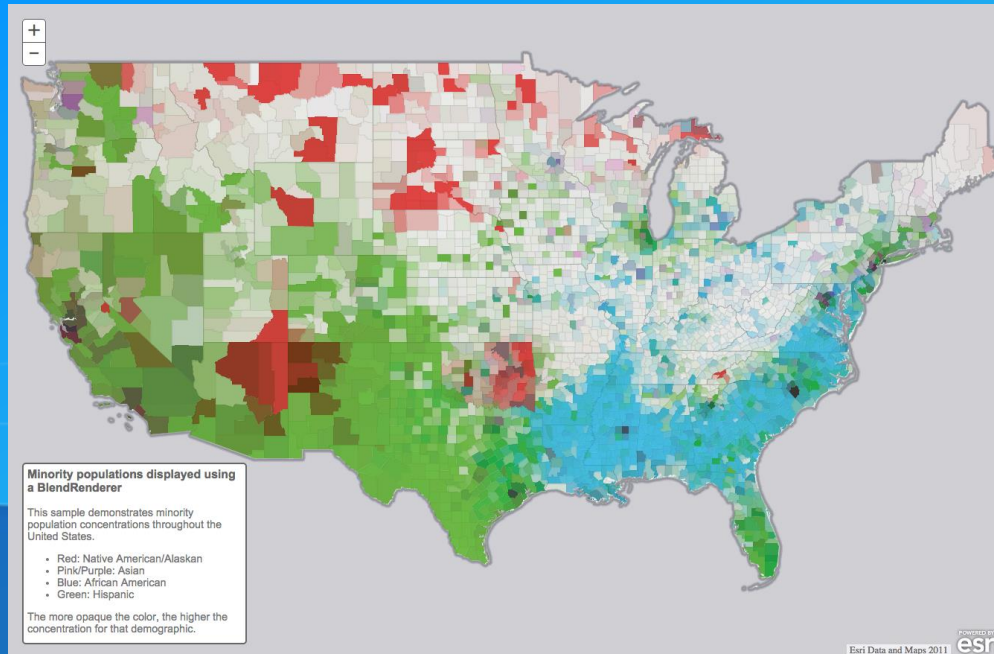
```
var renderer = new SimpleRenderer({
  symbol: new SimpleFillSymbol({
    outline: {
      color: "lightgray",
      width: 0.5
    }
  }),
  label: "% population in poverty by county",
  visualVariables: [{
    type: "color",
    field: "POP_POVERTY",
    normalizationField: "TOTPOP_CY",
    stops: [
      {
        value: 0.1,
        color: "#FFCD4",
        label: "<10%"
      },
      {
        value: 0.3,
        color: "#350242",
        label: ">30%"
      }
    ]
  }]
});
```

```
var strengthArcade = document.getElementById("strength").text;
renderer.visualVariables = [{
  type: "opacity",
  valueExpression: strengthArcade,
  valueExpressionTitle: "Share of registered voters",
  stops: [
    { value: 33, opacity: 0.05, label: "< 33% " },
    { value: 44, opacity: 1.0, label: "> 44% " }
  ]
}];
```

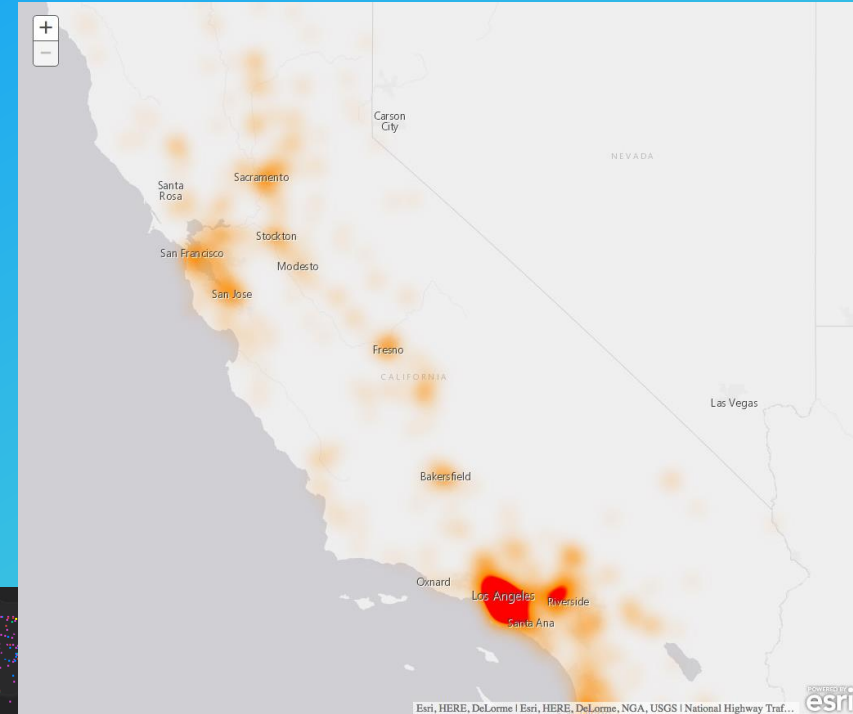


Renderers (3.x only)

BlendRenderer



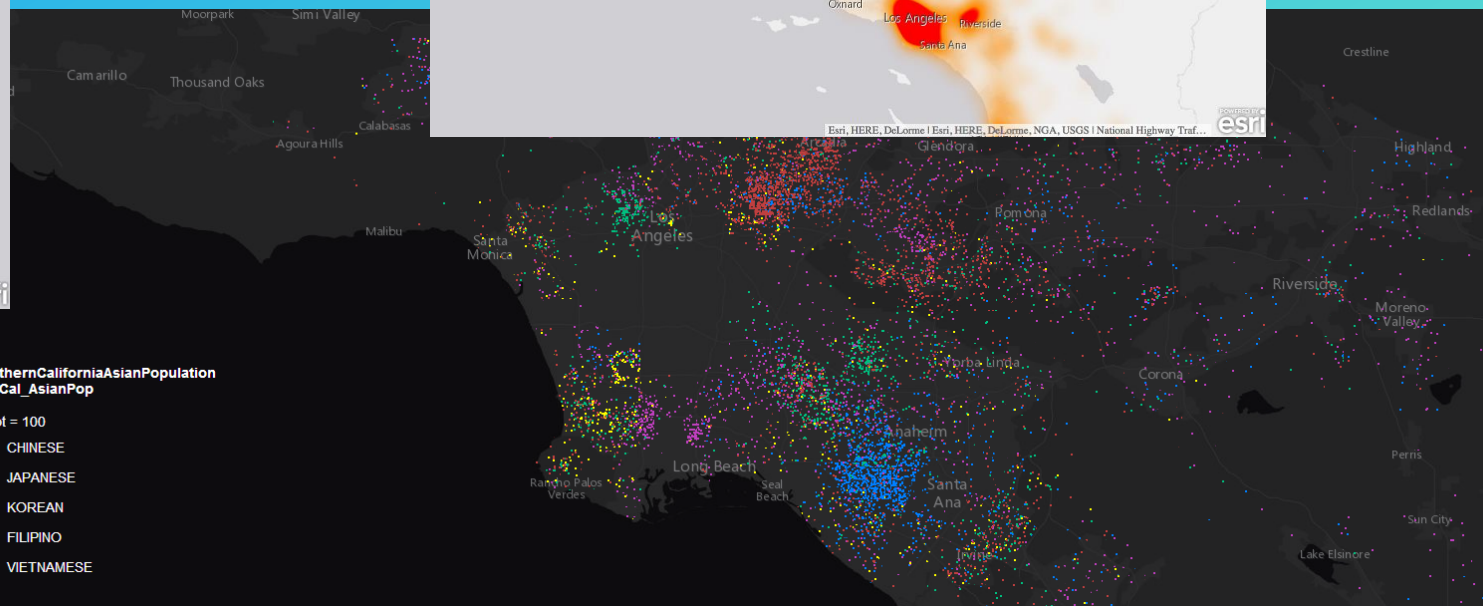
HeatmapRenderer



DotDensityRenderer

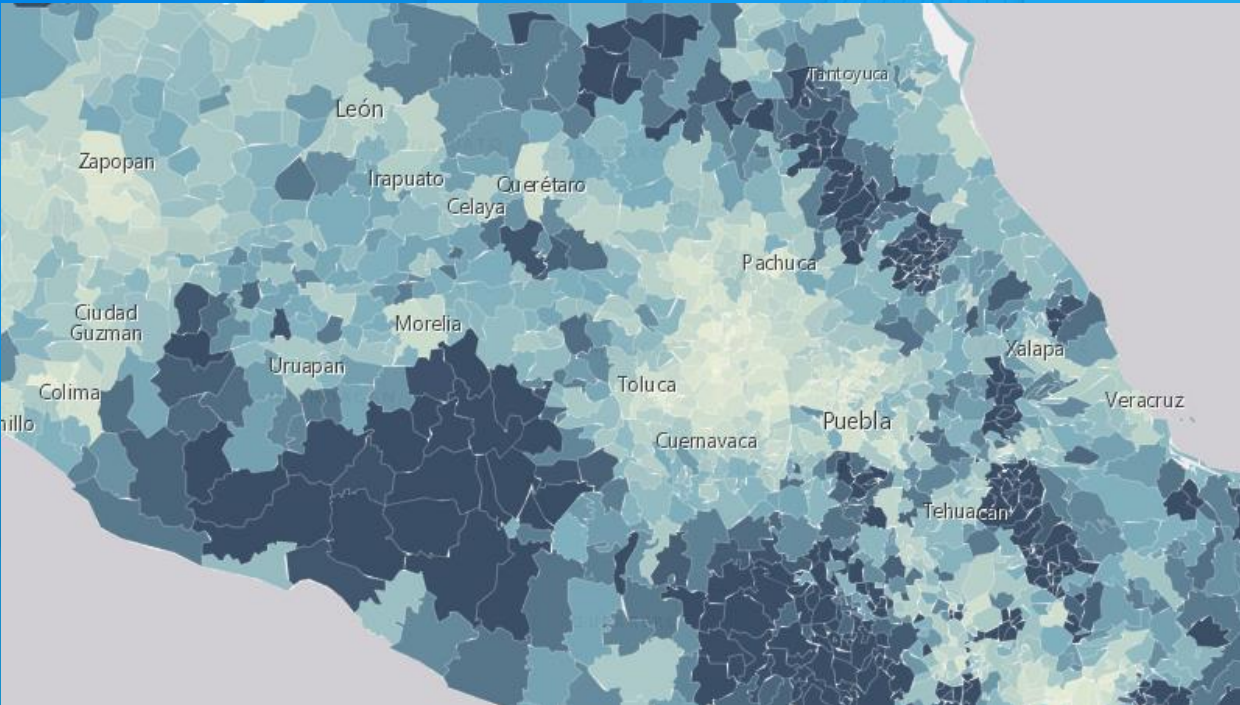
Southern California Asian Population - SoCal_AsianPop

- 1 Dot = 100
- CHINESE
 - JAPANESE
 - KOREAN
 - FILIPINO
 - VIETNAMESE

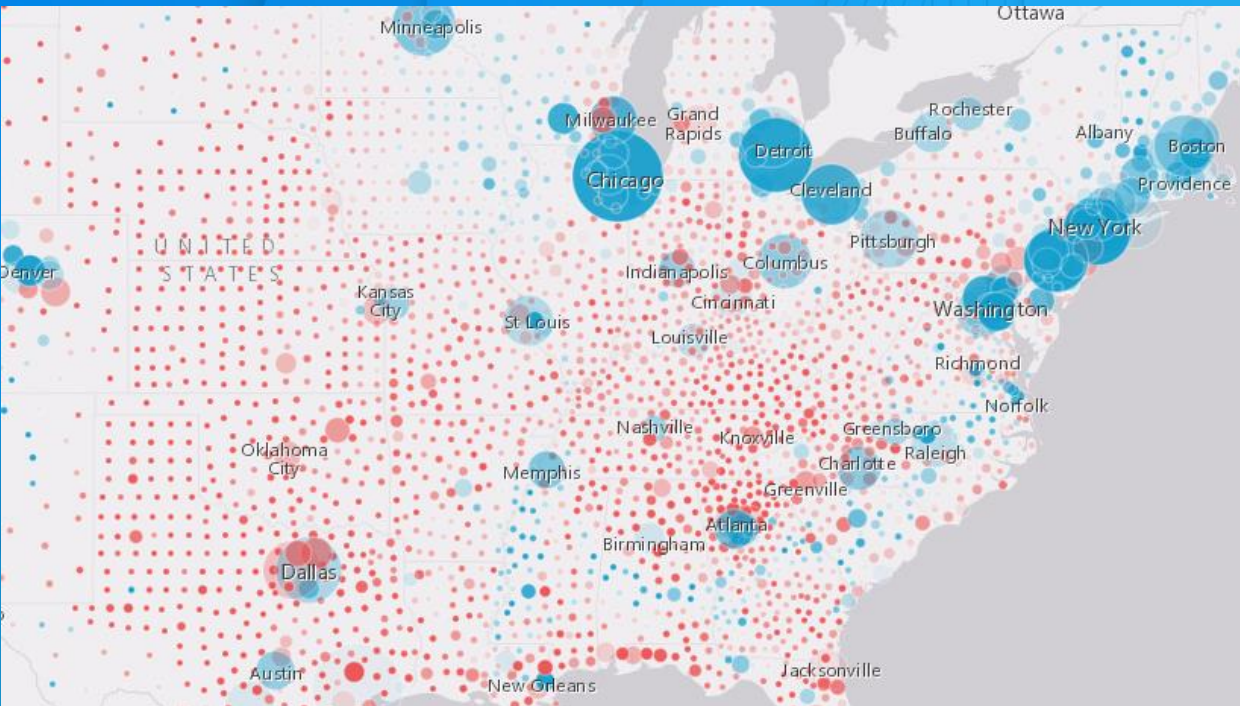


Examples

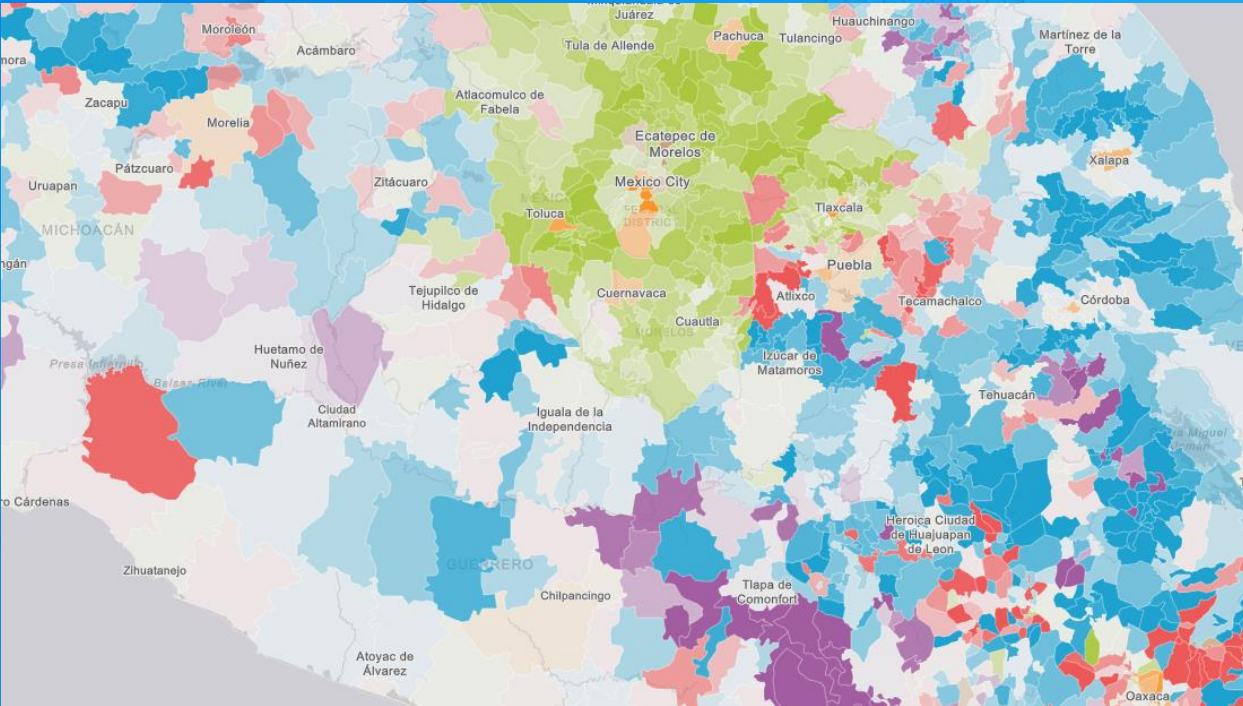




Visual Variables

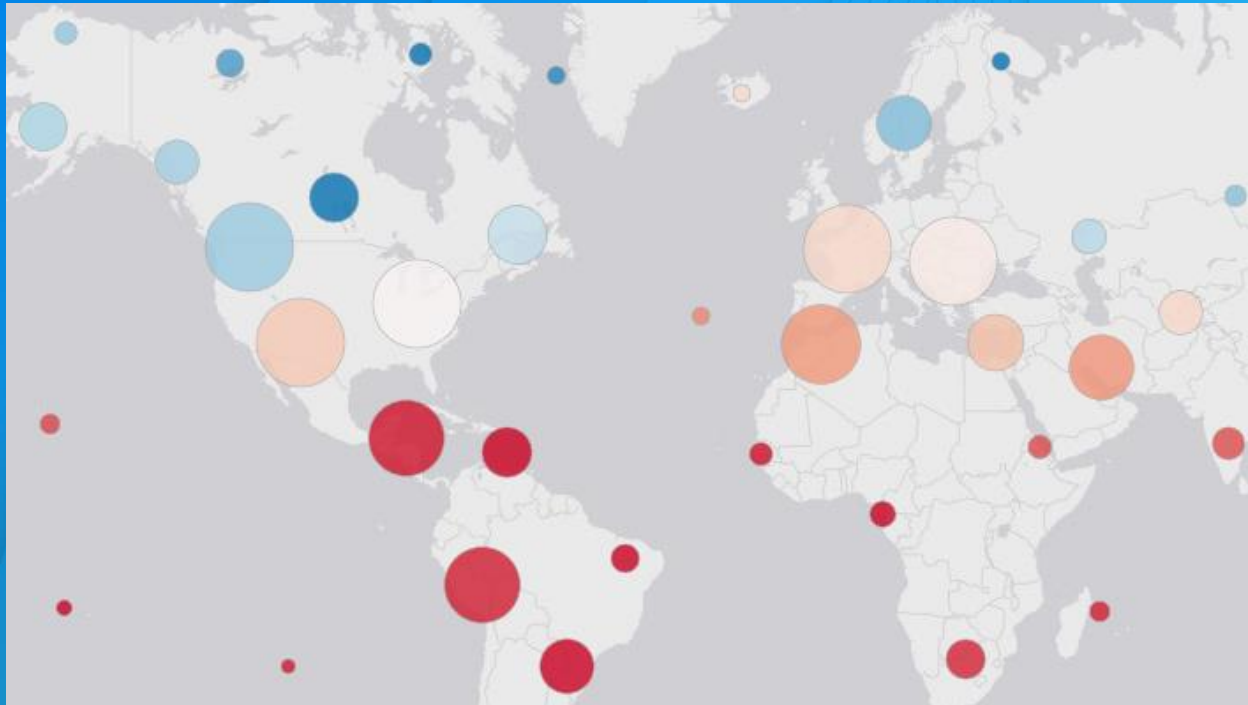


Multivariate visualizations



Arcade expressions

Predominance



Clustering

Available in 3.x; coming in 4.x soon

Resources

- [Get started with visualization](#)
- ArcGIS Blog
 - [Visualizing data in web apps](#)
 - [Predominance visualizations using Arcade](#)
 - [Using Arcade expressions in web apps](#)
- Documentation
 - [Renderer](#)
 - [Symbol](#)

The screenshot shows the ArcGIS API for JavaScript Playground interface. The main map area displays a dark-themed map of Southern California with a green dashed line drawn across it. The line starts near Long Beach, goes north to Lancaster, then east to Victorville, and finally south to San Diego. The configuration panel on the right is titled 'SimpleLineStyle: draw polylines and' and contains the following settings:

style	short-dash-dot-dot
cap	butt
join	miter
miterLimit	10
width	4.75
color	[85, 255, 0, 1]

Below the configuration panel is a code editor with the following JavaScript code:

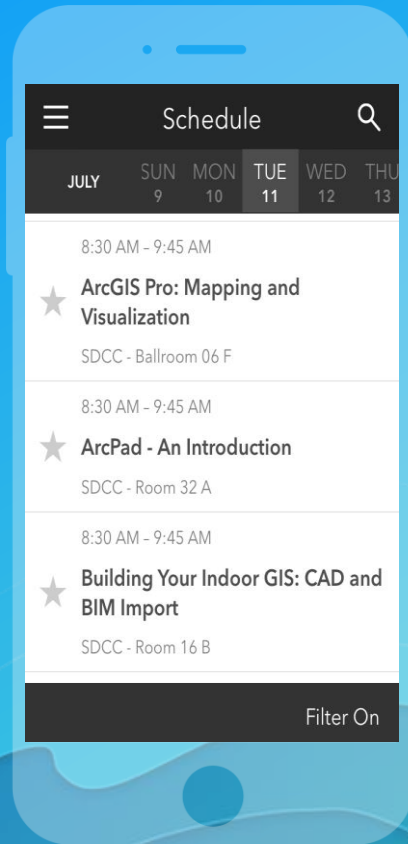
```
1 // Modules required:
2 // esri/symbols/SimpleLineStyle
3
4 var line = new SimpleLineStyle({
5   style: "short-dash-dot-dot",
6   width: 4.75,
7   color: [85, 255, 0, 1]
8 });
```

Please Take Our Survey on the Esri Events App!

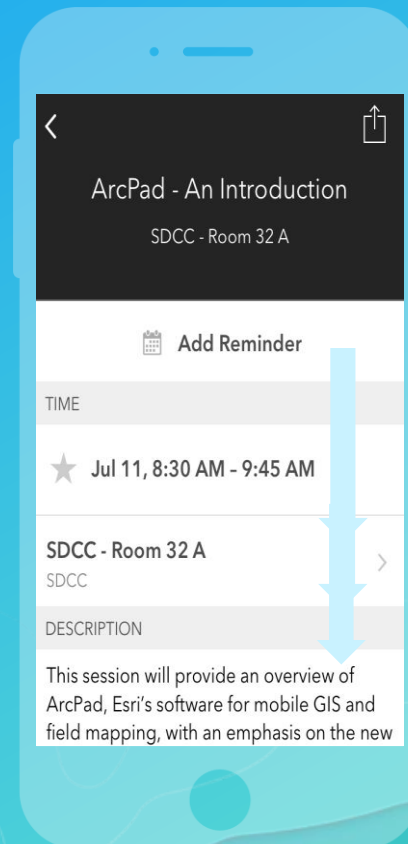
Download the Esri Events app and find your event



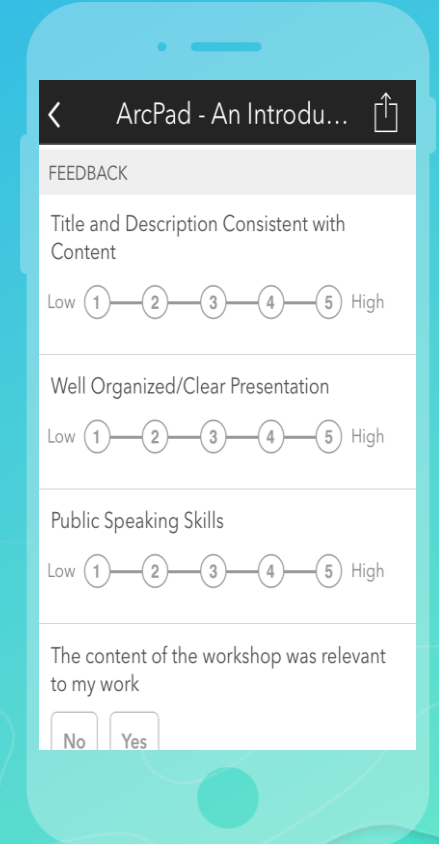
Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"





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