



# Building Apps with ArcGIS Maps SDK for JavaScript Charts Components

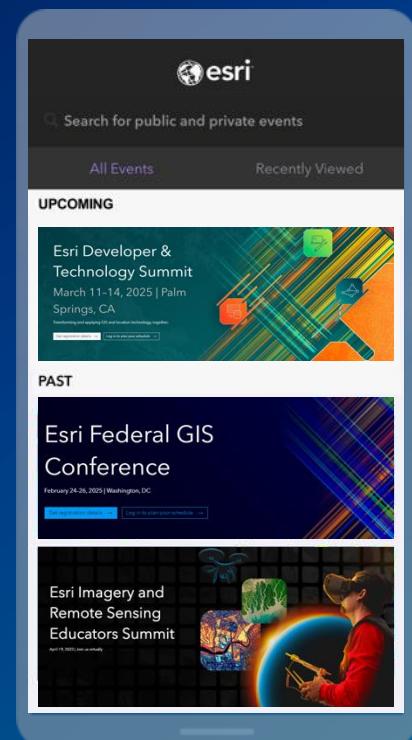
Kristian Ekenes, Haoyan Chen

2025 ESRI DEVELOPER & TECHNOLOGY SUMMIT

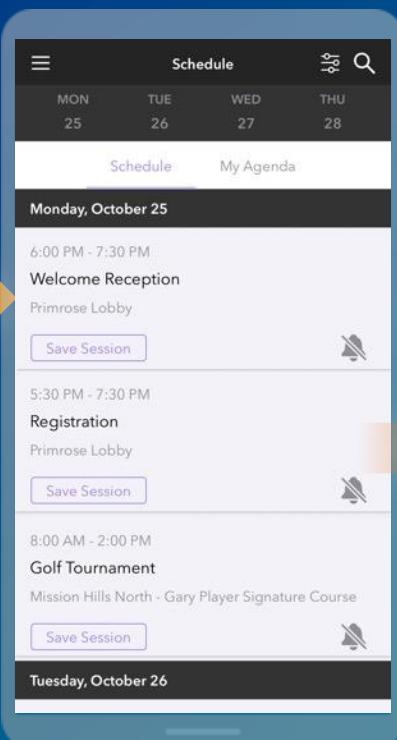


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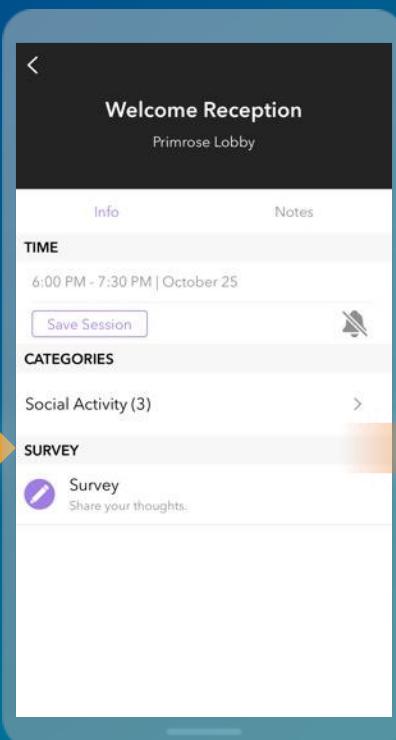
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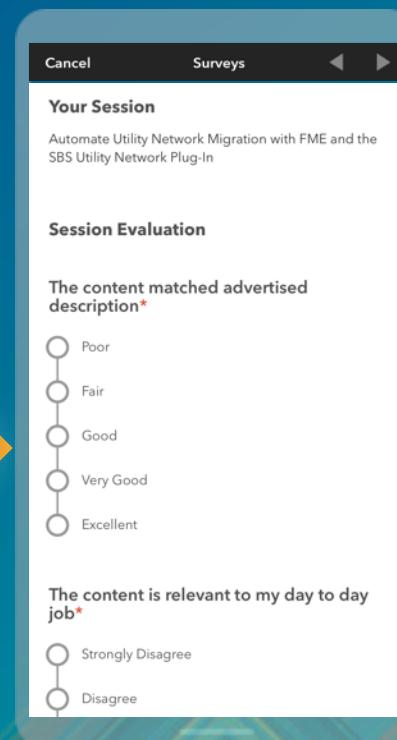
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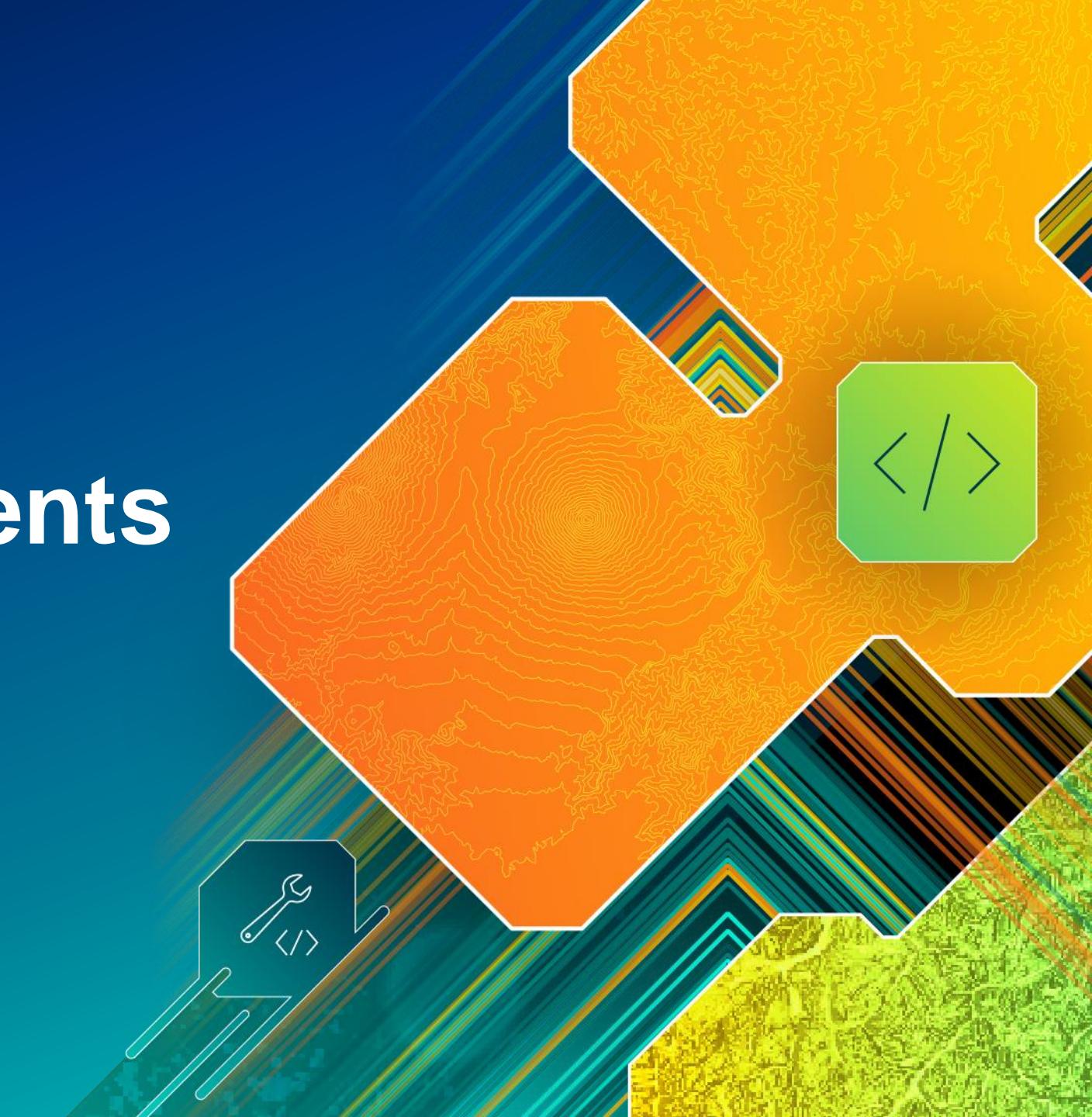
# Agenda

Building Apps with ArcGIS Maps SDK for JavaScript Charts Components

- Introduction
- Get started
- HTML demo
- React 19 demo
- Roadmap
- Q&A

# Introduction to charts components

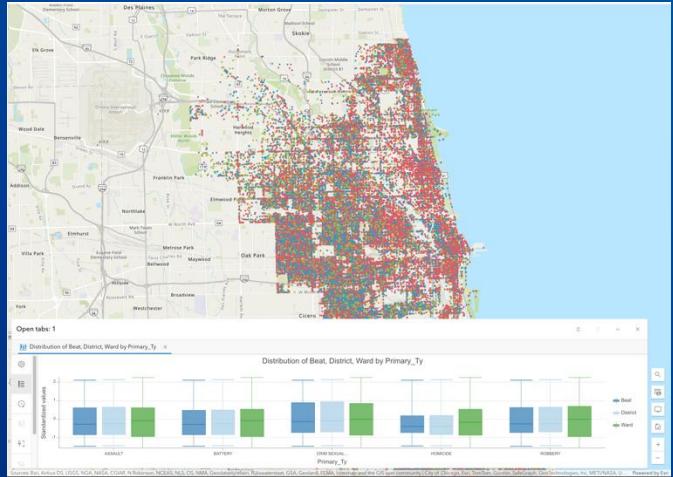
Haoyan Chen



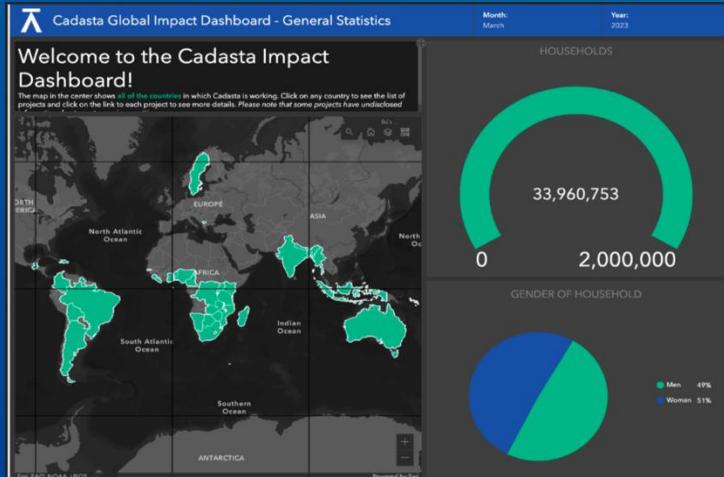
# Introduction to charts components

- **Why:** Charts components were developed initially to provide platform-level common language and charting solution to enable its use in different ArcGIS Online applications.
- **How:** By embracing web standards, and modern technologies, charts components were developed as web components.
- **What:** Today we offer charts components that are framework agnostic solution using a common chart specification both for our internal usage and for developers to build chart-based mapping applications.

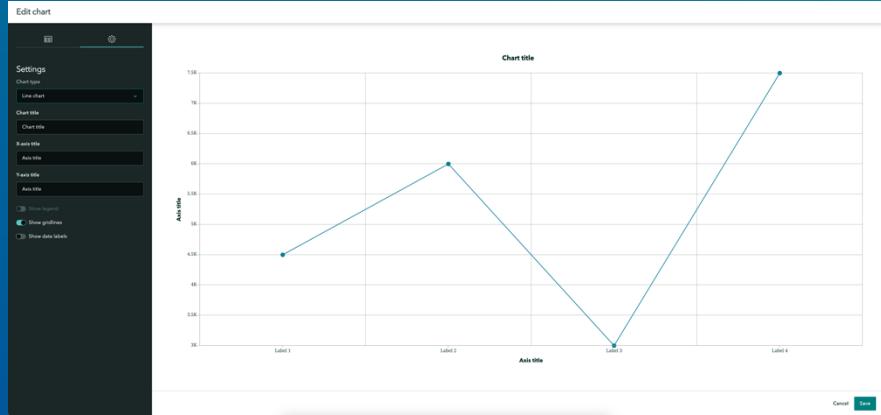
# Charts components in ArcGIS Online



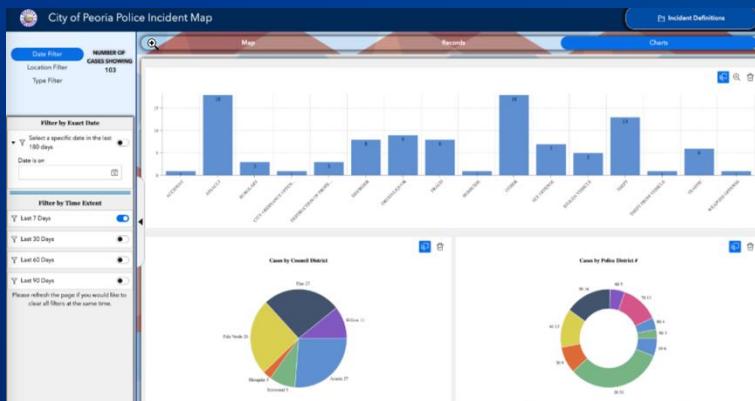
Map Viewer



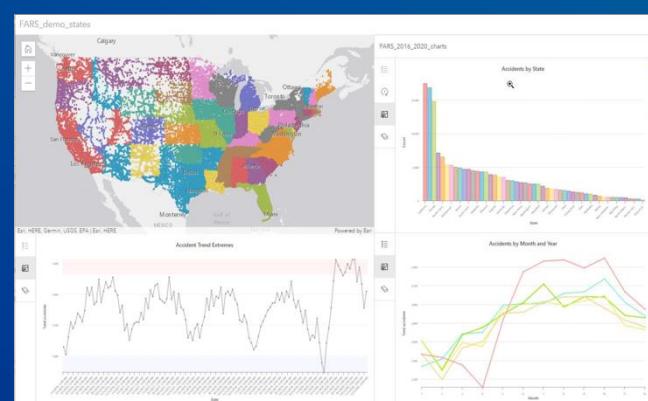
Dashboards



StoryMaps



Experience Builder

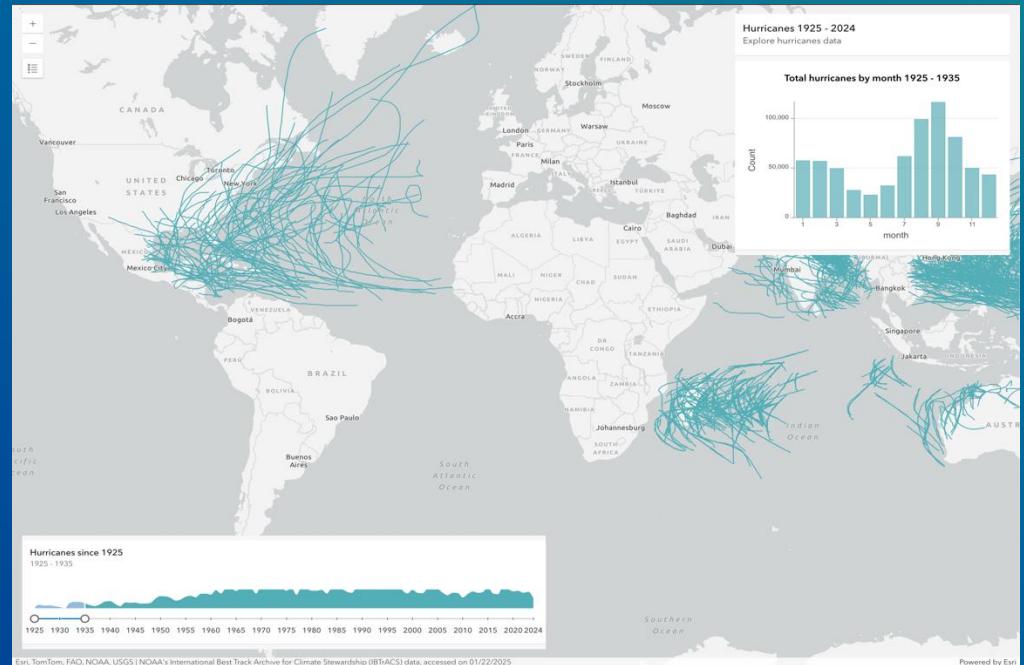


Instant Apps

# Charts components in custom apps



## Using map component with charts component, styled with Calcite components



## Dynamic chart rendering based on time slider values, color matched to the layer data

# Charts components

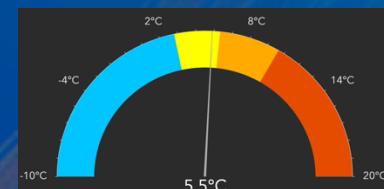
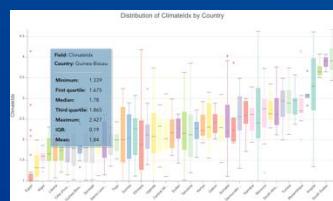
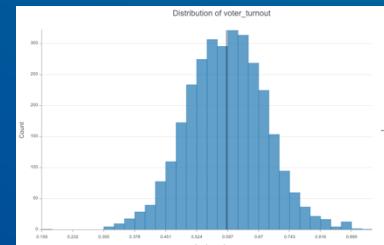
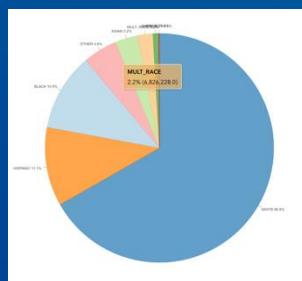
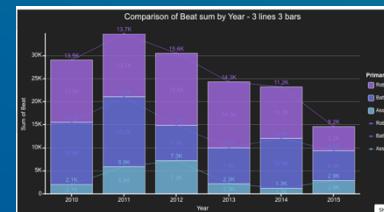
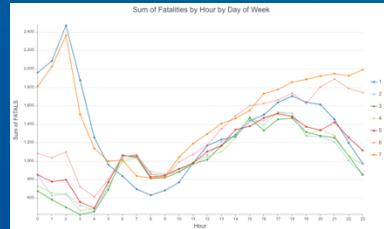
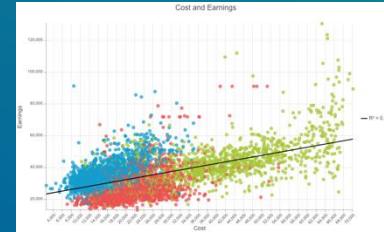
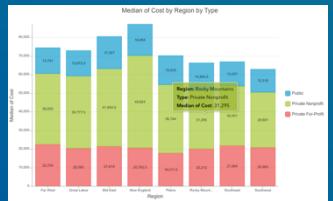
@arcgis/charts-components

- <arcgis-chart>

- Renders a chart base on the configuration object being passed in
  - Bar, line, pie
  - Box plot
  - Scatterplot
  - Bar & line combo chart
  - Histogram
  - Gauge

- <arcgis-charts-action-bar>

- Additional set of actions that enhance usage with the chart. Allows interaction with other components.
- Default list of actions is based on the chart type



- Legend
- Rotate chart
- Filter by selection
- Filter by extent
- Zoom
- Selection
- Clear selection
- Full extent
- Switch selection
- << Collapse

# Charts model

@arcgis/charts-model

- Simplifies the process of creating and modifying the chart's configuration
- Each chart type have its own charts model and contains methods specific to the chart
  - Bar chart => BarChartModel
- Getters and settings for things like configuring series, updating styles or adding guides.

▼ CHARTS MODEL

- Bar Chart Model
- Box Plot Model
- Line Chart Model
- Gauge Model
- Histogram Model
- Pie Chart Model
- Scatterplot Model

Bar Chart Model

Bar chart Model allows you to configure the JSON object that represents the configuration of a bar chart. The configuration then can be passed into <arcgis<chart>> component to render the chart. Use the below methods to freely configure with the bar chart model.

Name	Description
addXAxisGuide	Signature: addXAxisGuide(name: string, index?: number): void Description: Adds an X-axis guide. Parameters: <ul style="list-style-type: none"><li>name: string - The name of the guide.</li><li>Optional index: number - The index to insert the new guide in the list of X-axis guides. If left undefined, the last guide in the list is used.</li></ul> Returns: void
addYAxisGuide	Signature: addYAxisGuide(name: string, index?: number): void Description: Adds a Y-axis guide. Parameters: <ul style="list-style-type: none"><li>name: string - The name of the guide.</li><li>Optional index: number - The index to insert the new guide in the list of Y-axis guides. If left undefined, the last guide in the list is used.</li></ul> Returns: void
deleteXAxisGuide	Signature: deleteXAxisGuide(index?: number): void Description: Deletes an X-axis guide. Parameters: <ul style="list-style-type: none"><li>Optional index: number - The index of the guide to delete in the list of X-axis guides. If left undefined, the last guide in the list is deleted.</li></ul> Returns: void
deleteYAxisGuide	Signature: deleteYAxisGuide(index?: number): void Description: Deletes a Y-axis guide. Parameters: <ul style="list-style-type: none"><li>Optional index: number - The index of the guide to delete in the list of Y-axis guides. If left undefined, the last guide in the list is deleted.</li></ul> Returns: void
getAggregationType	Signature: getAggregationType(): RESTStatisticType Description: Gets the aggregation type for the bar chart. Returns: RESTStatisticType
getAxisLabelsSymbol	Signature: getAxisLabelsSymbol(): undefined   WebCartTextSymbol Description: Gets the axis labels text symbol. Contains styling information such as font, color, and symbol style. Returns: undefined   WebCartTextSymbol



@arcgis/charts-model  6.32.1 • Public • Published 2 days ago

Readme    3 Dependencies 

ArcGIS Maps SDK for JavaScript - Charts Model (beta)

No Esri Technical Support during beta.

This package is intended to be used as an helper package to generate chart's JSON as per the chart's specification to use with Charts Components.

Samples for how to use this package are available on github in the [jsapi-resources](#) repository.

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# CDN or NPM

@arcgis/charts-components and @arcgis/charts-model

- CDN

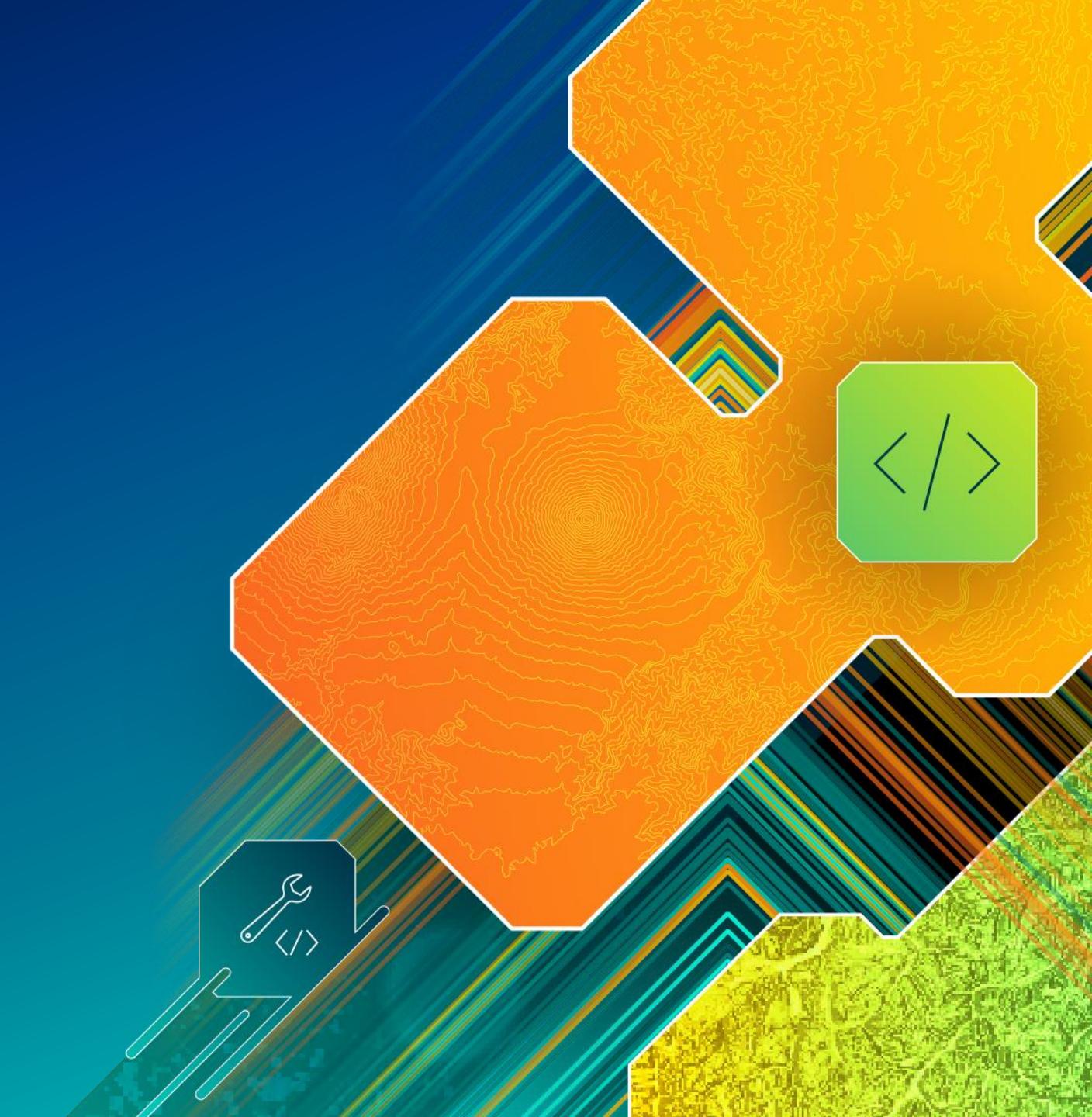
- Loads packages directly from a URL without installation
- Use directly inside the <script> tag, no need for a build step
- Good for quick prototyping, small projects
- Fast initial setup

- NPM

- Requires installation (npm, yarn..)
- Works well with module bundlers (Vite, Webpack..)
- Ideal for large scale applications with package dependencies
- Requires a build step before deployment
- Easy to manage package versions with package.json

# Getting started

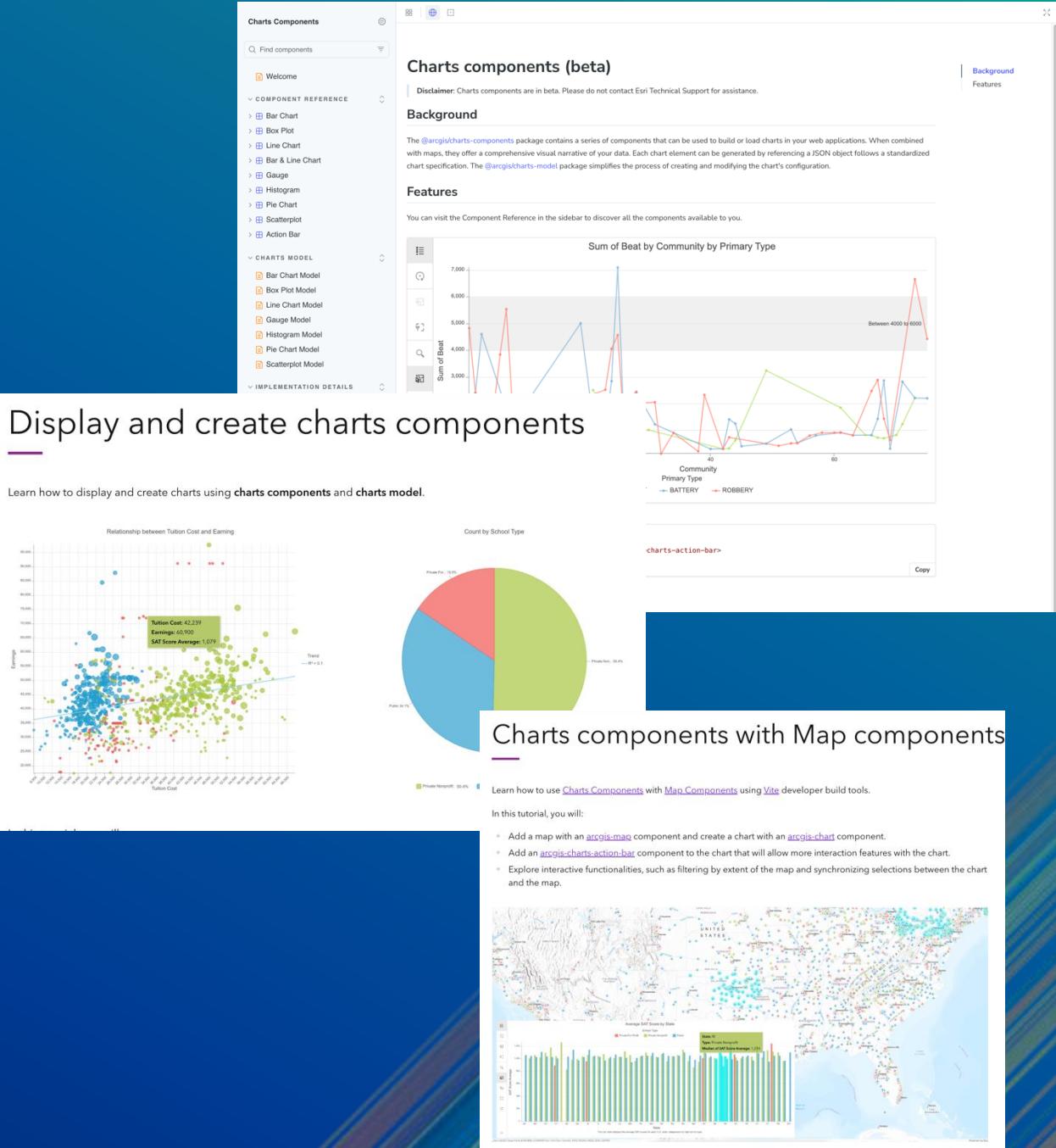
Haoyan Chen



# Documentation

## Samples, tutorials and full documentation

- Documentation
    - Charts component documentation
    - Components get started
  - Samples for different frameworks
    - React 19, Angular 19, Vite, Vue, CDN, Webpack
  - Step by step tutorials
    - Display and create charts components (CDN/HTML)
    - Charts components with Map components (Vite)



# How to configure and render a chart

## Load a pre-configured chart from Map Viewer

- Webmaps (Feature layers, Feature tables)
  - Charts can be created and saved on the feature layer
  - We can directly load the config object from the FL to render a chart



## Create a new chart with charts model

- Utilize charts model to configure a brand-new chart
- Configure freely with setters and getters with same functionality as Map Viewer

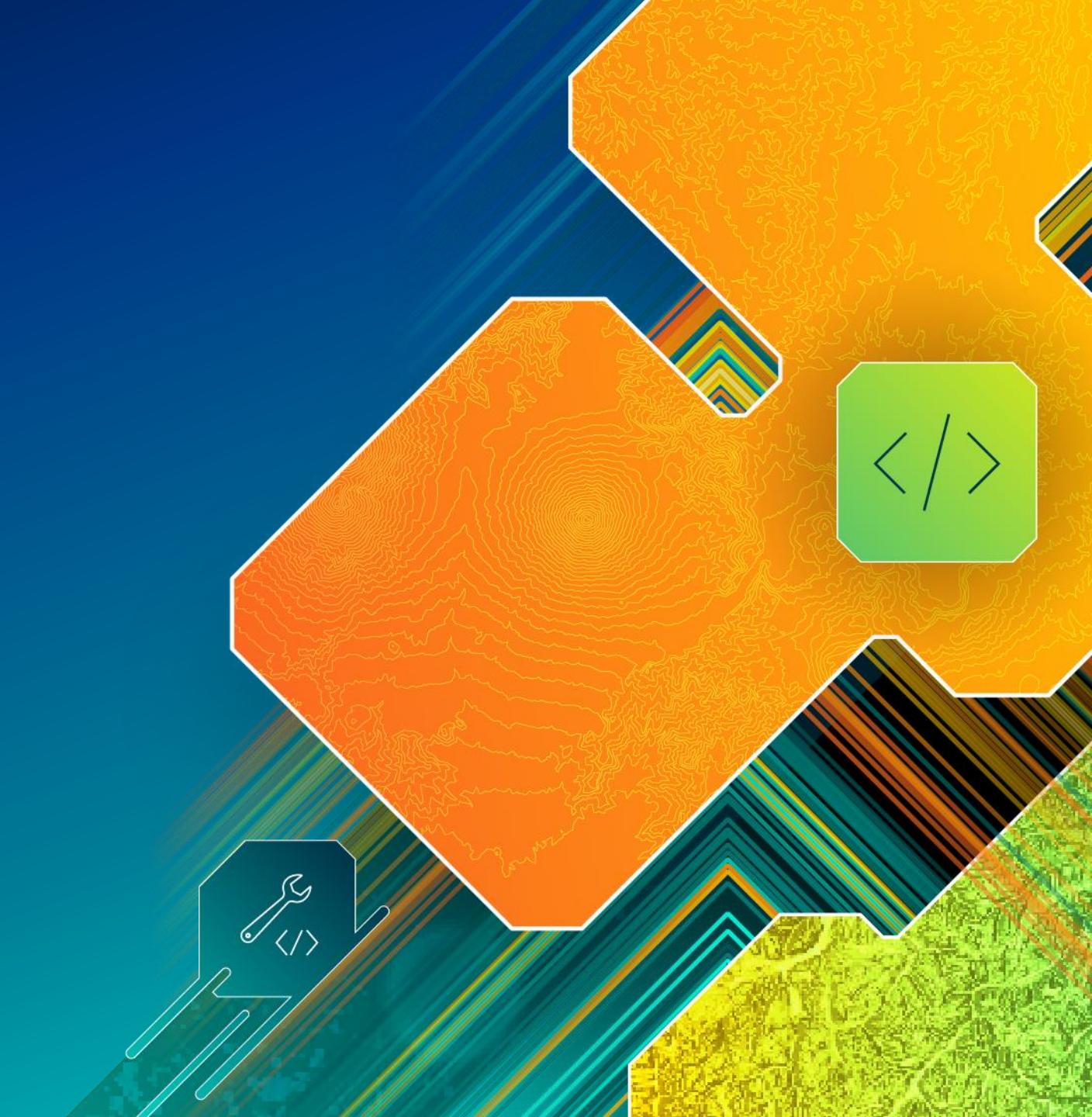
```
const barChartModel = new BarChartModel();
await barChartModel.setup({ layer });

await barChartModel.setXAxisField("Ward");
await barChartModel.setSplitByField("District");
barChartModel.setDataLabelsVisibility(true);
barChartModel.setSortOrder("yAxisDesc");

const config = barChartModel.getConfig();
const barChart = document.getElementById("bar-chart");
barChart.model = config;
barChart.layer = layer;
```

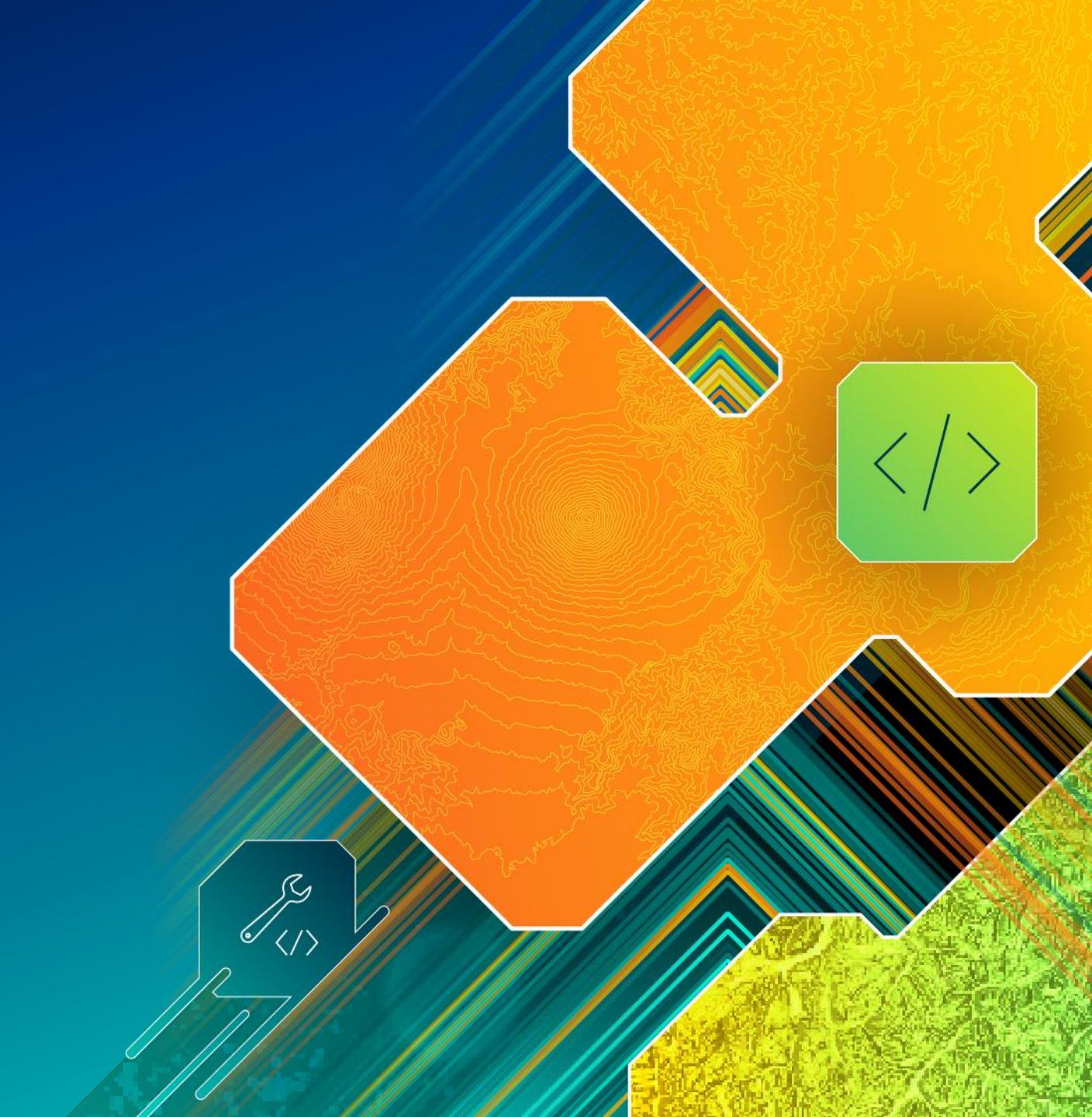
# Demo

Kristian Ekenes



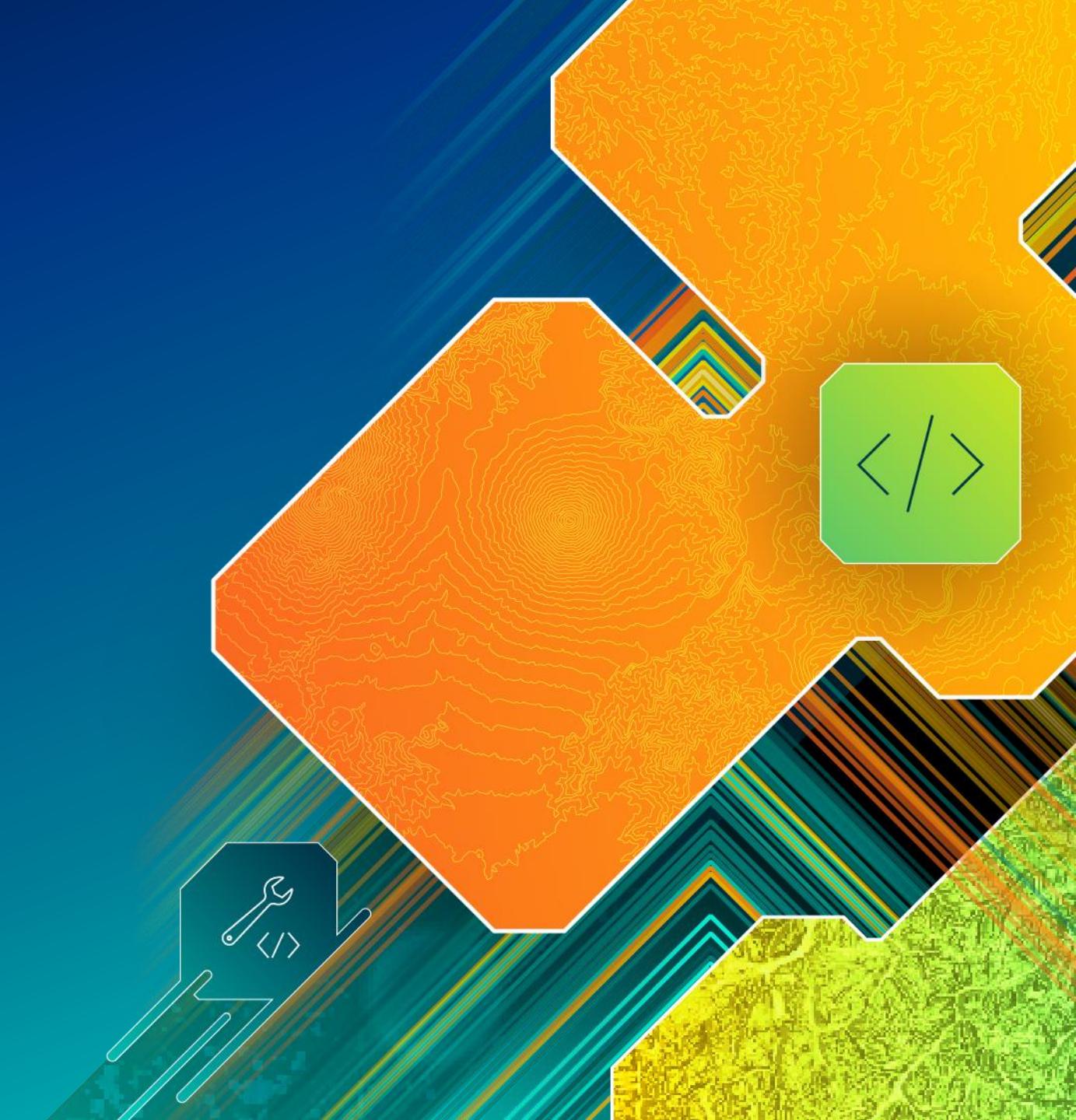
# Demo

Haoyan Chen



# Roadmap

Haoyan Chen



# Charts components roadmap

ArcGIS Maps SDK for JavaScript

4.32 (February)

- Simplified component naming, no more separate component for chart types, now just <arcgis-chart>
- Improved documentation for charts model and specification
- New boxplot display option (mean lines)
- Action bar now renders default actions base on chart type
- Scatterplot data fetching improved x10 for aggregated scatterplots

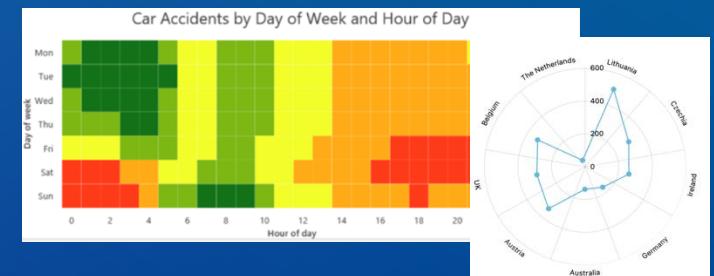
4.33 (June)

- Integrated documentation on developer site
- Simplified usage with charts model
- Scatterplot migrating to canvas based
- Calendar based binning for temporal bar & line combo chart

# points	SVG	Canvas
10k	5 sec	1.5 sec
20k	10 sec	2 sec
50k	21 sec	4.5 sec

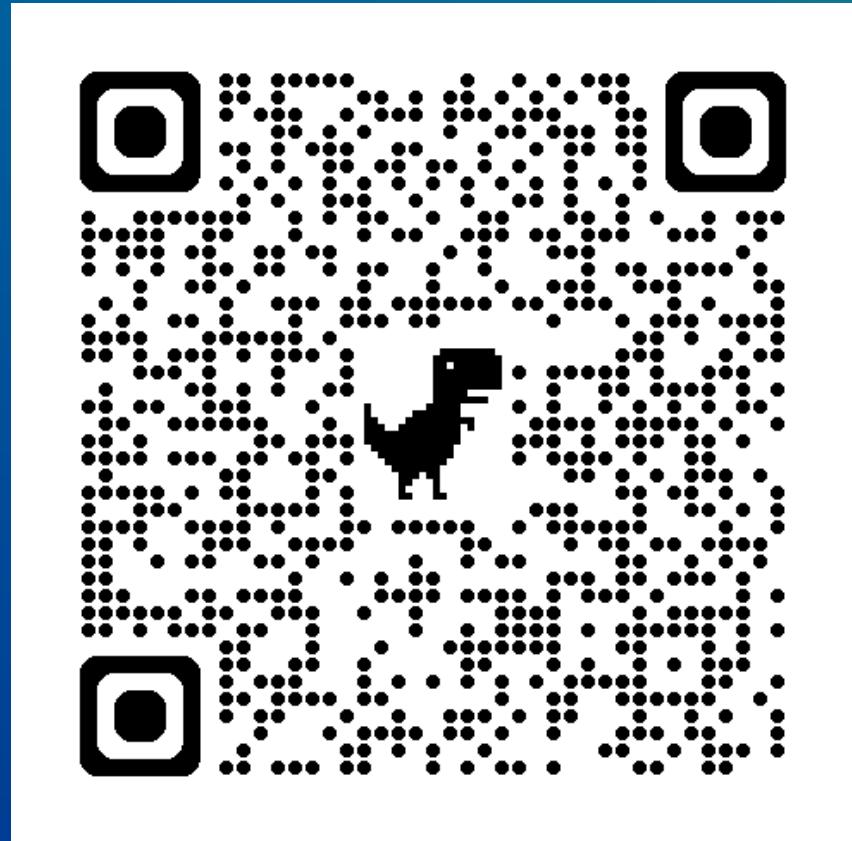
In planning

- Bar & line combo chart model capability
- Cont. migrating all other chart types to canvas based
- Calendar heat chart
- Matrix chart
- Radar chart



# Resources

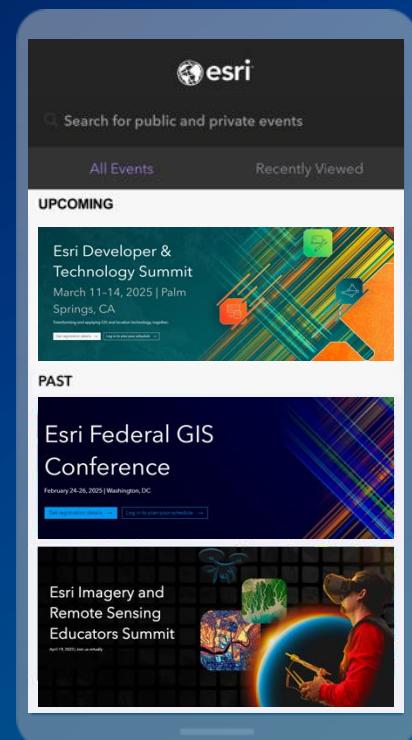
- [Demo GitHub repo](#)
- [Charts components documentation](#)
- [Samples & tutorials](#)



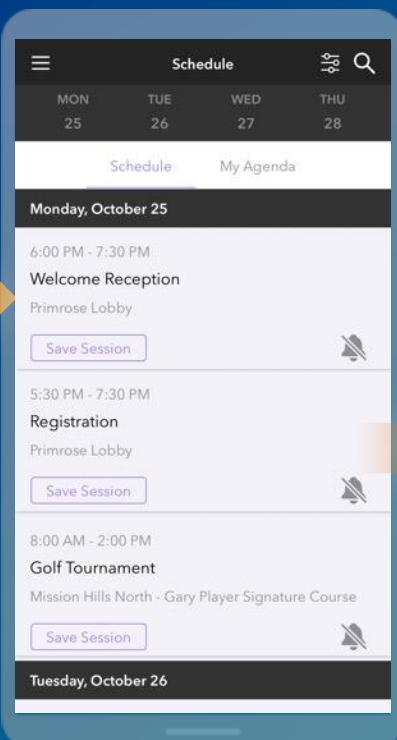
Repo containing demos

# Please share your feedback in the app

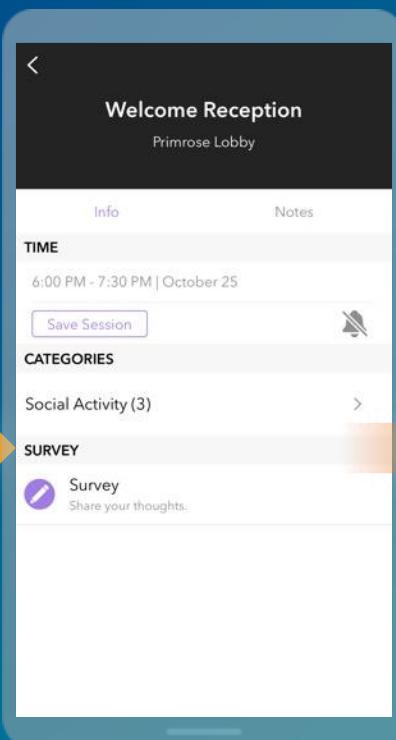
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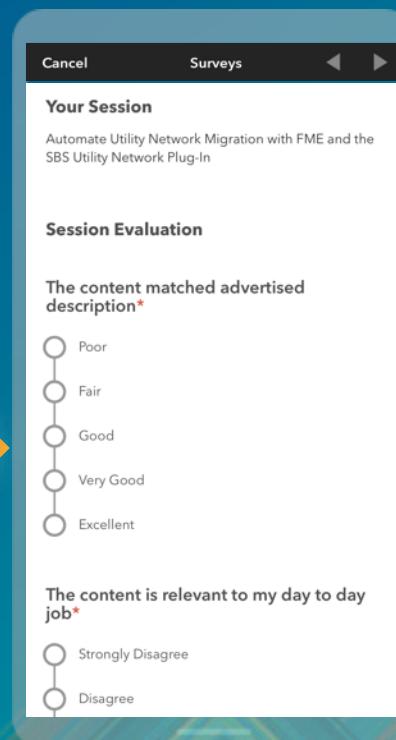
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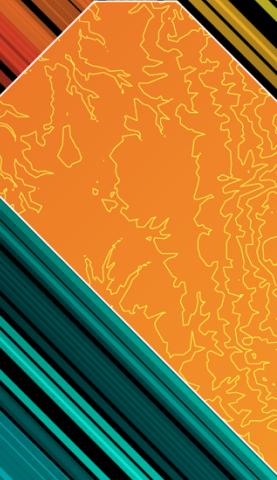
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