Data Visualization with Vega-Lite and Altair

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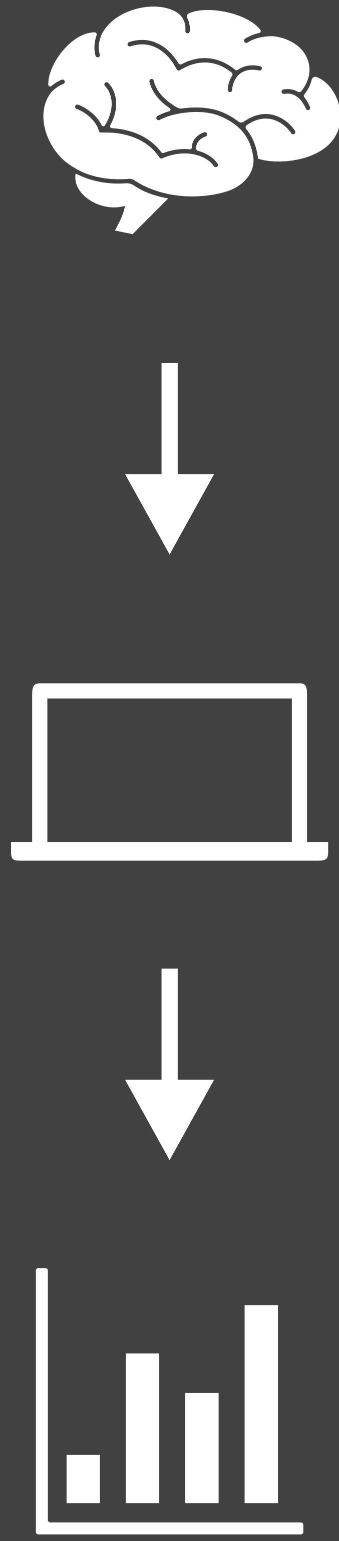
With many collaborators:
Kanit Wongsuphasawat
Arvind Satyanarayan
Jeffrey Heer
Jake VanderPlas
… and many more

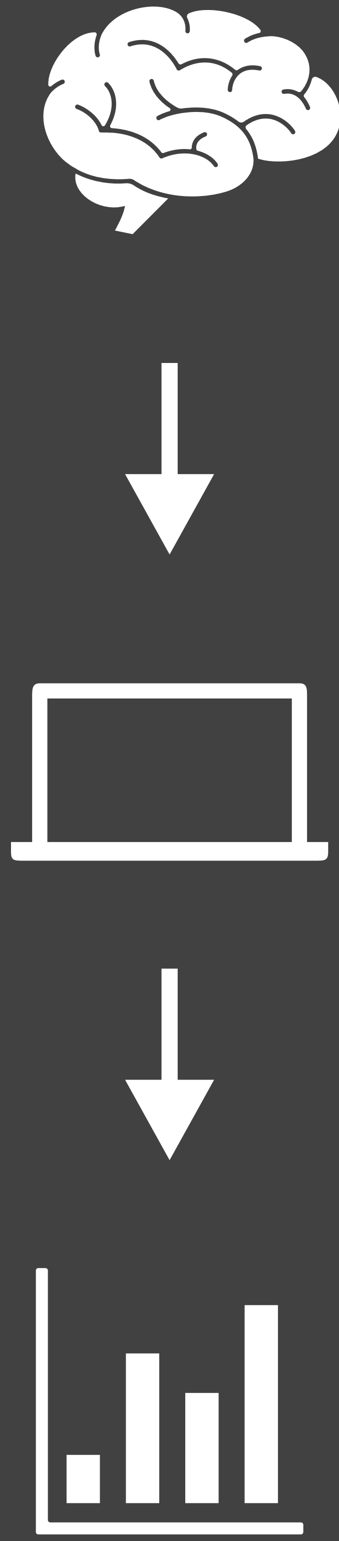
Visualization **concepts** should map directly to visualization **implementation**



Visualization **concepts** should map directly to visualization **implementation**

Declarative building blocks

(specify the *what*, now the *how*)



Declarative building blocks

Imperative

"Put a red circle here and a blue circle there."

Declarative

"Map <foo> to a position and <bar> to a color."

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Declarative

"Map <foo> to a position and <bar> to a color."

Declarative visualization lets you think about **data** and **relationships** rather than implementation details.

Vega-Lite

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{
  "data": {"url": "data/iris.json"},
  "mark": "point",
  "encoding": {
    "x": {
      "field": "petalLength",
      "type": "quantitative"},
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    "color": {
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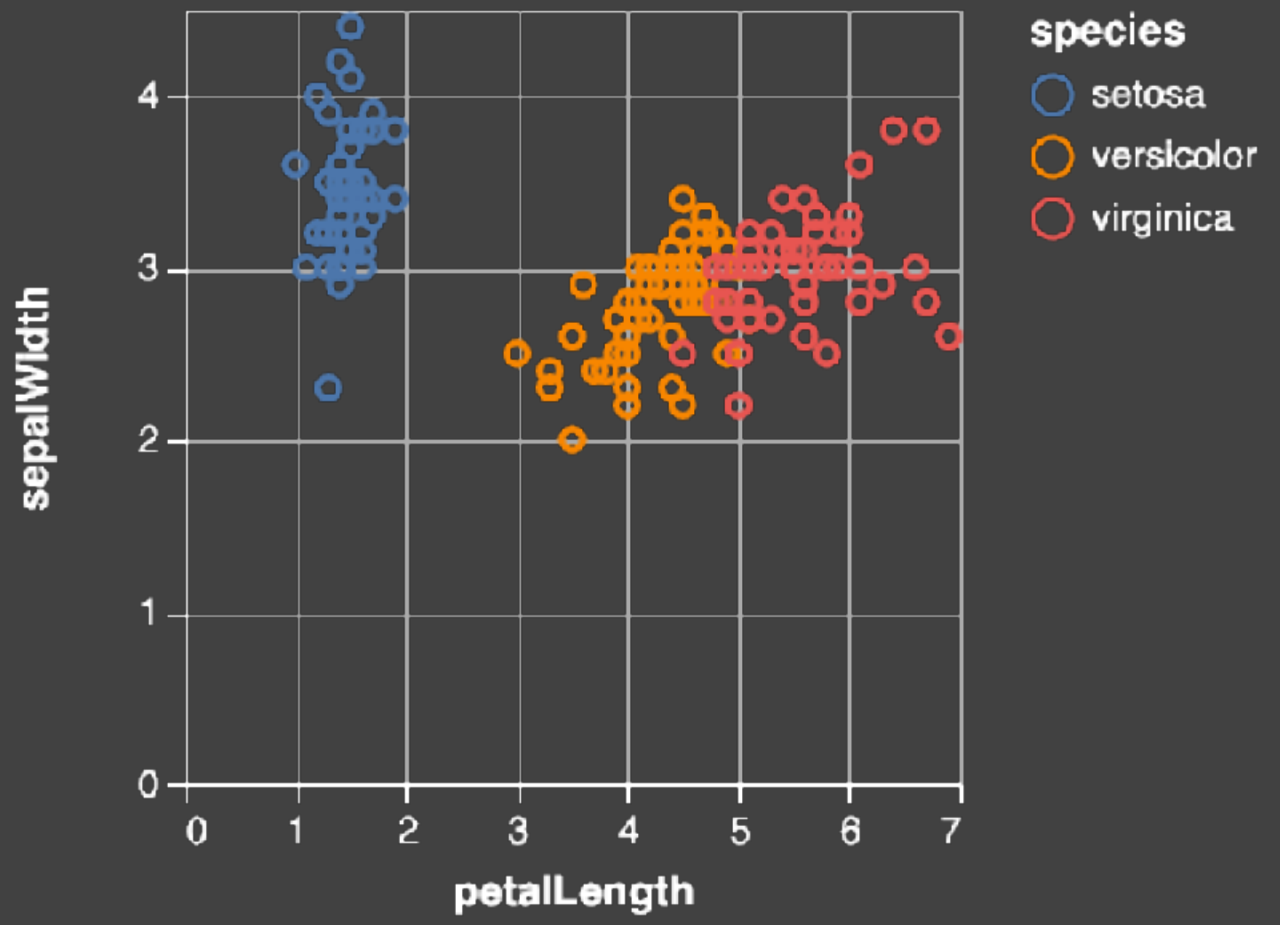

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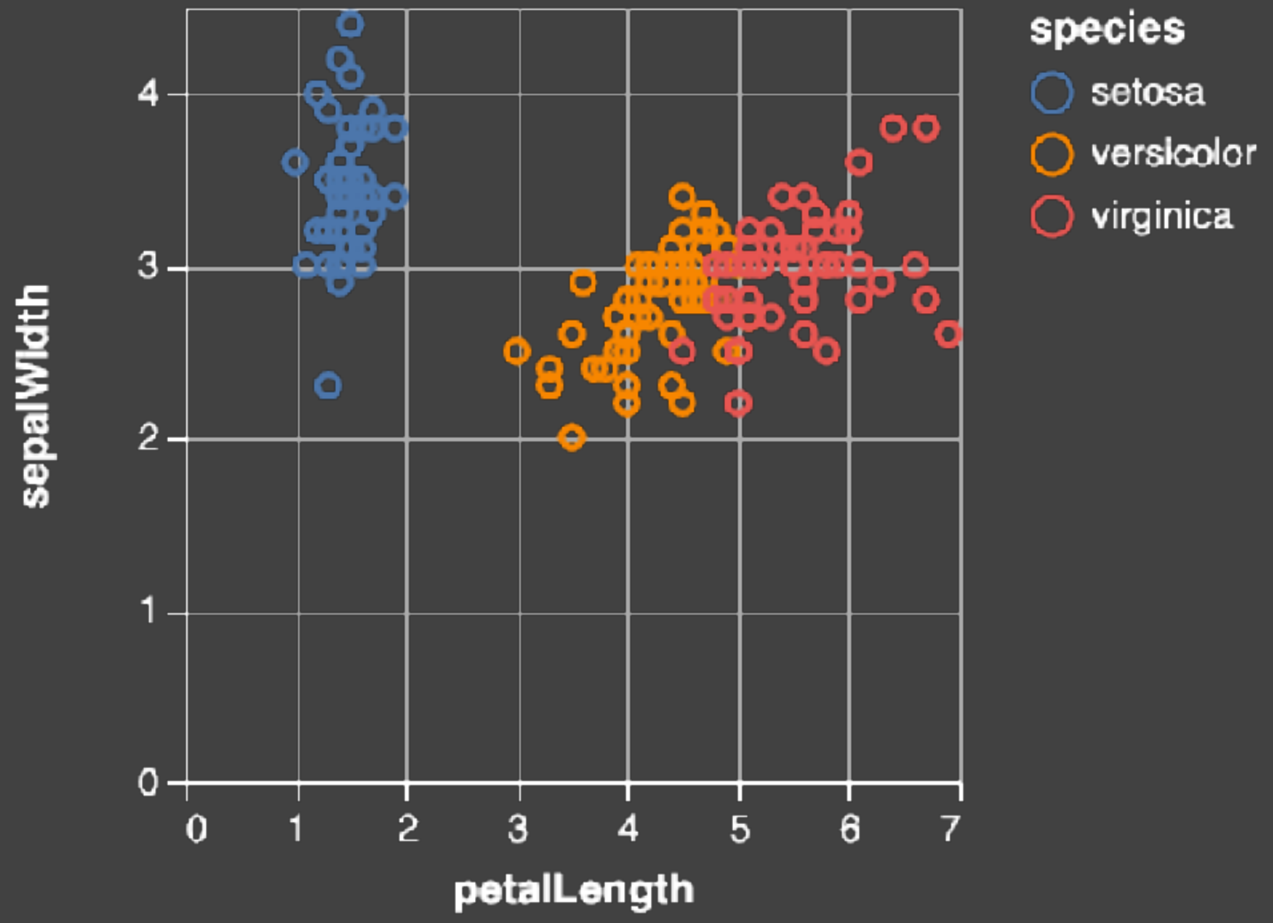

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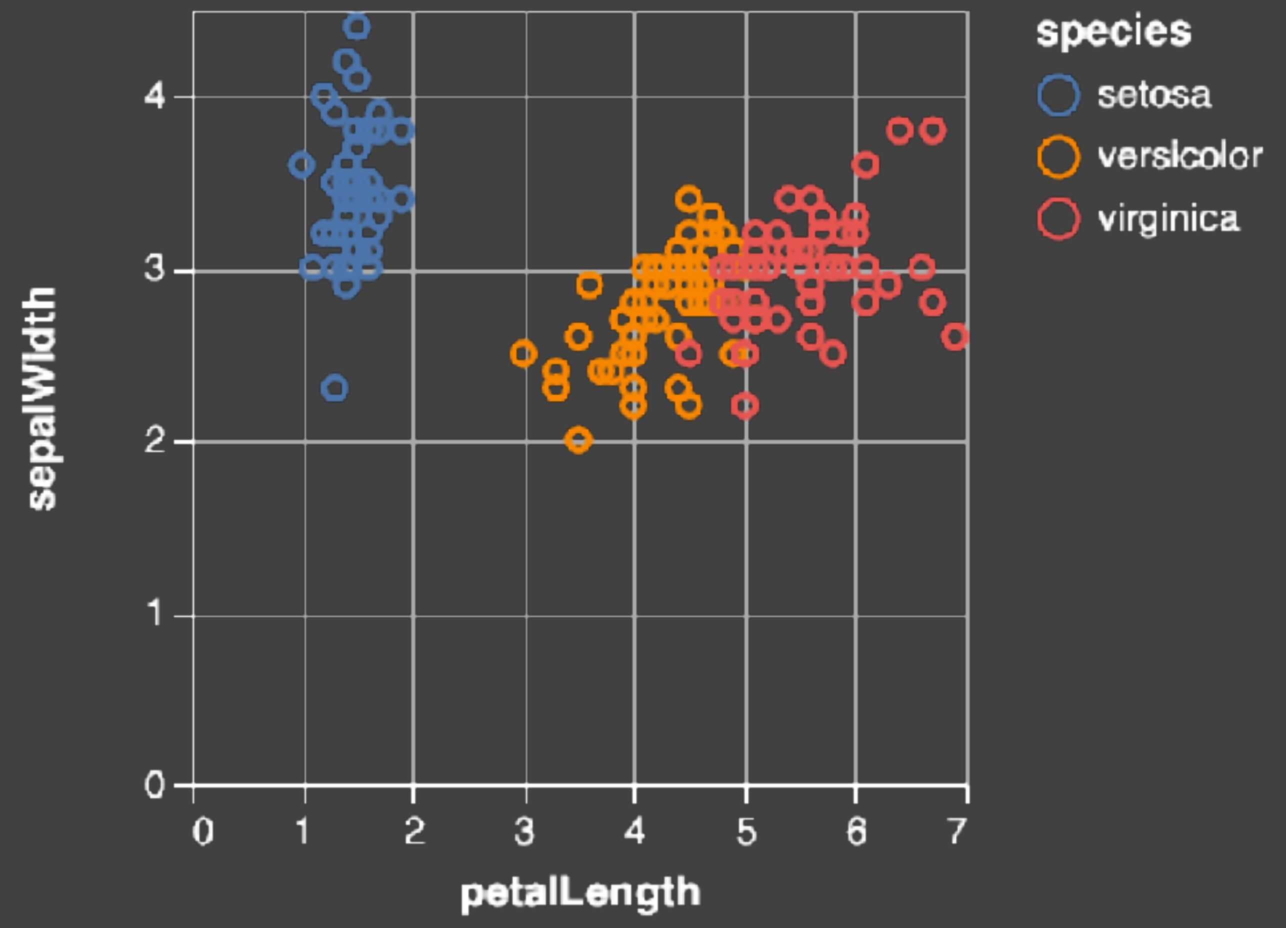

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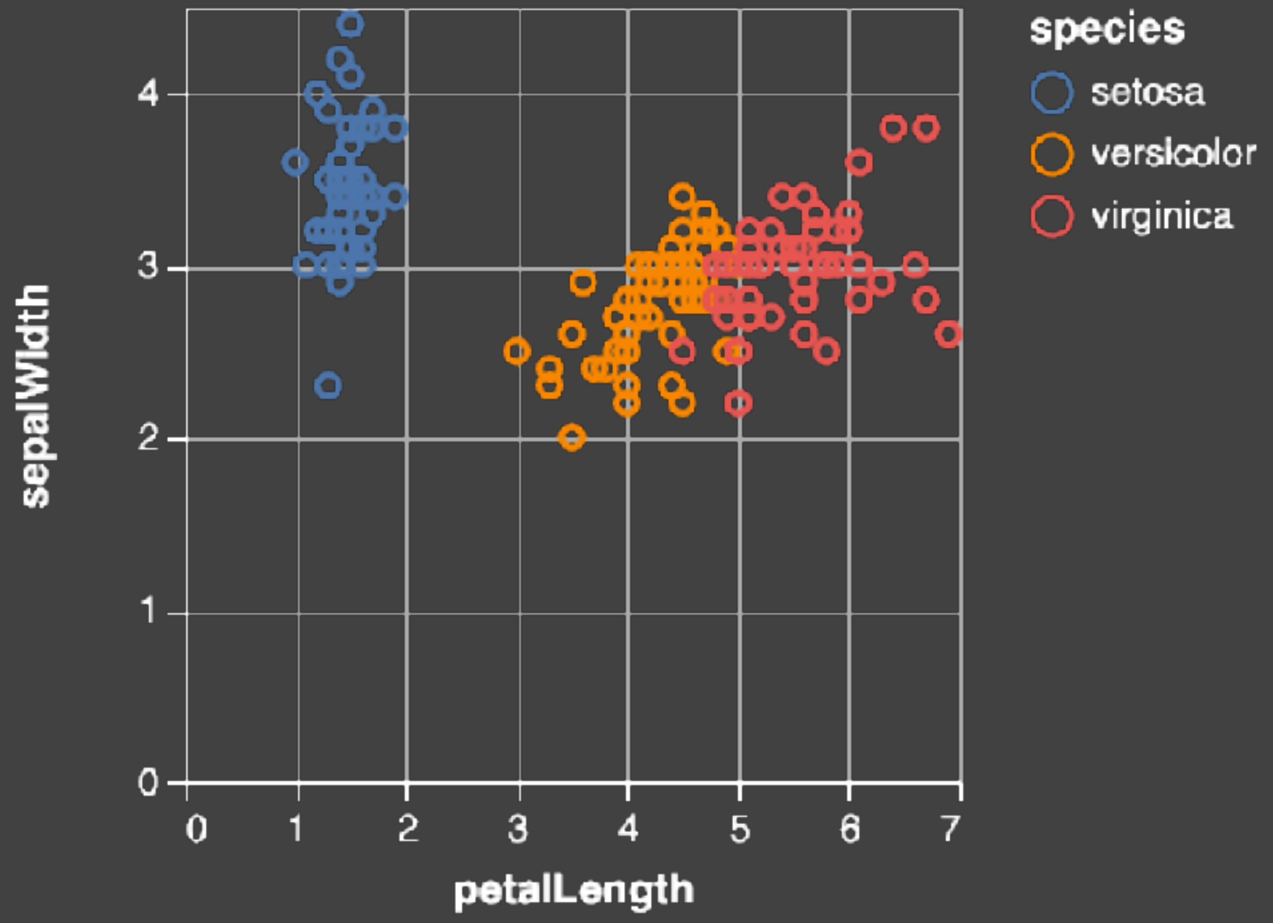
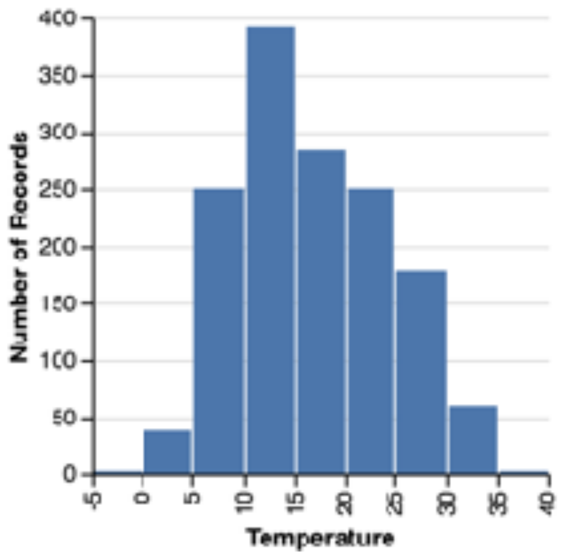
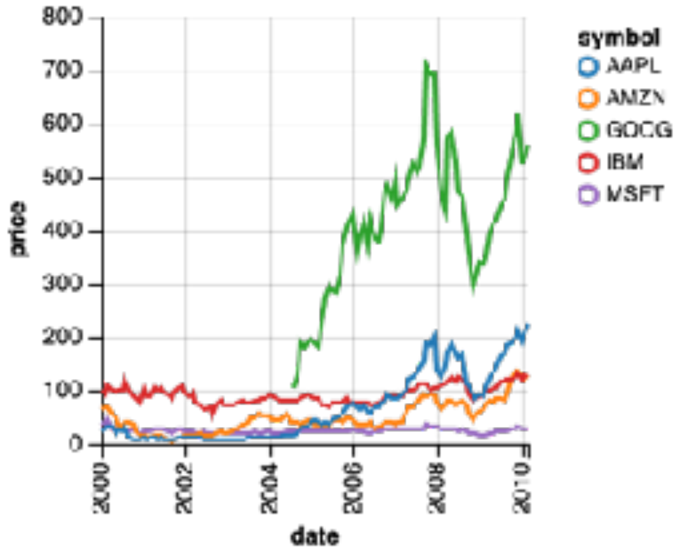


Statistical Graphics

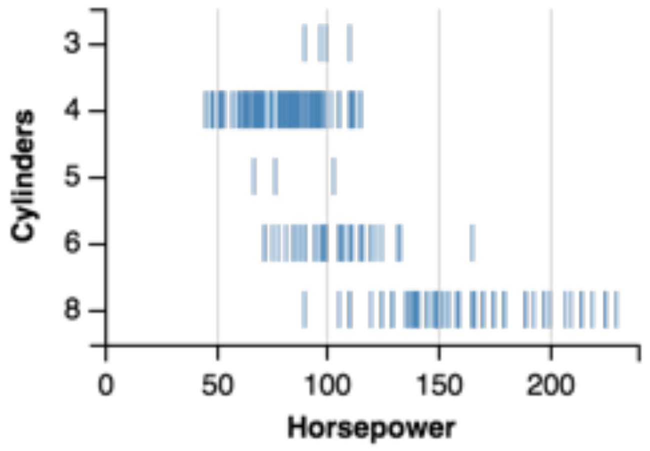
Histogram



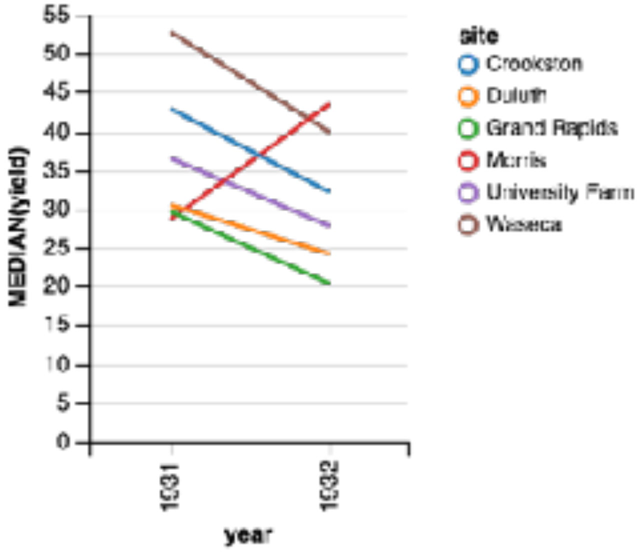
Multi-series Line Chart



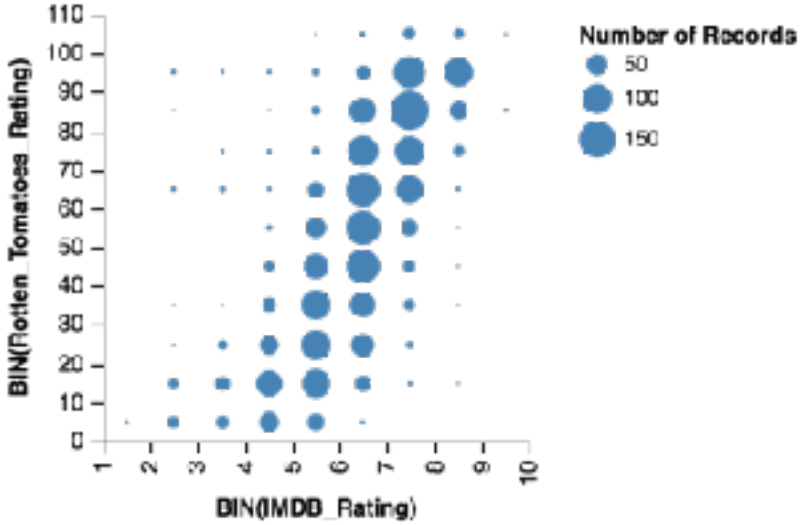
Stripplot



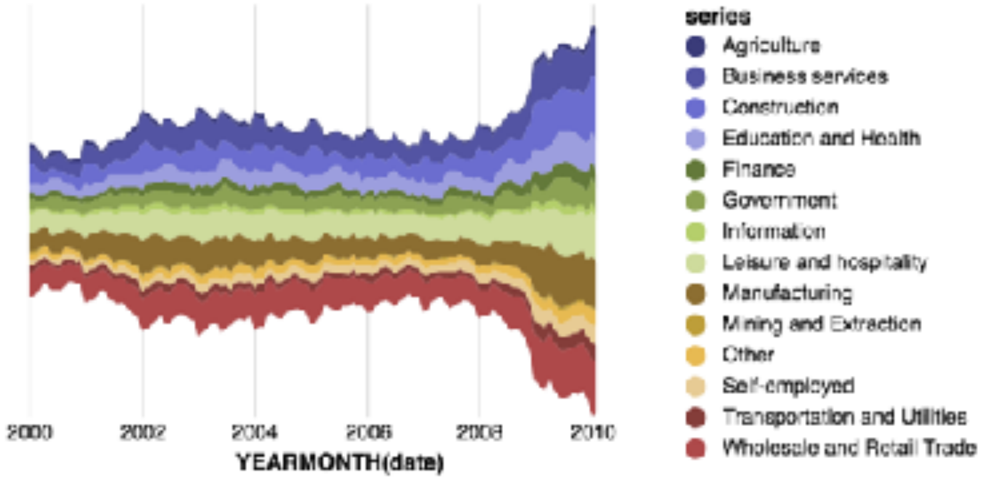
Slope Graph



Binned Scatterplot

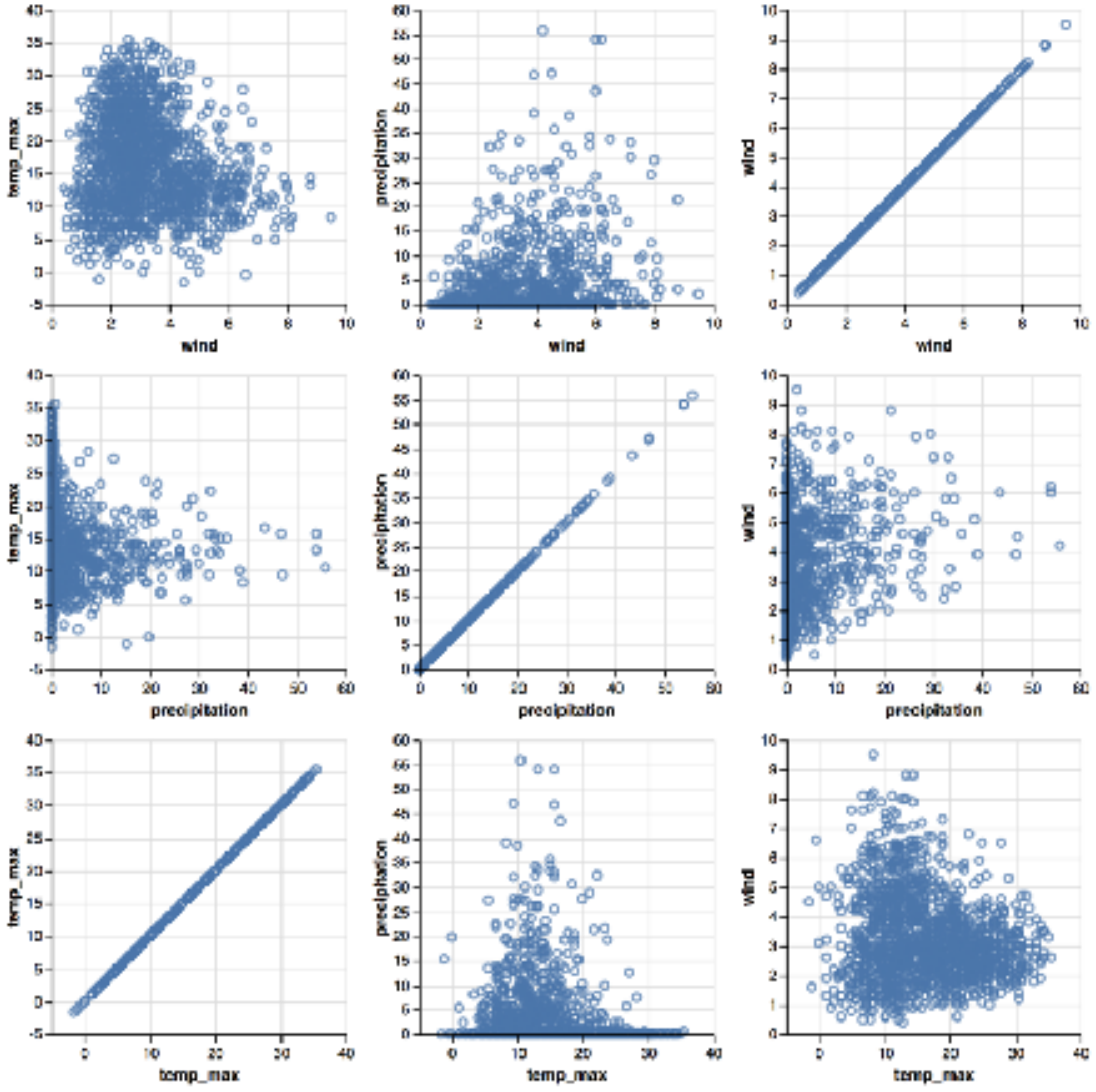


Area Chart

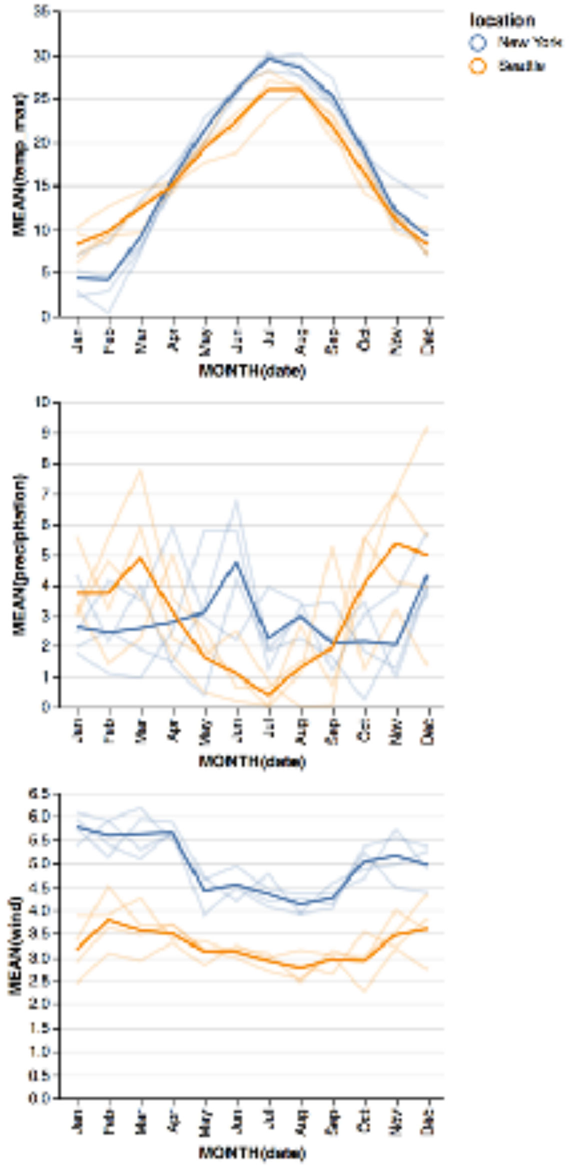


Multi-View Graphics

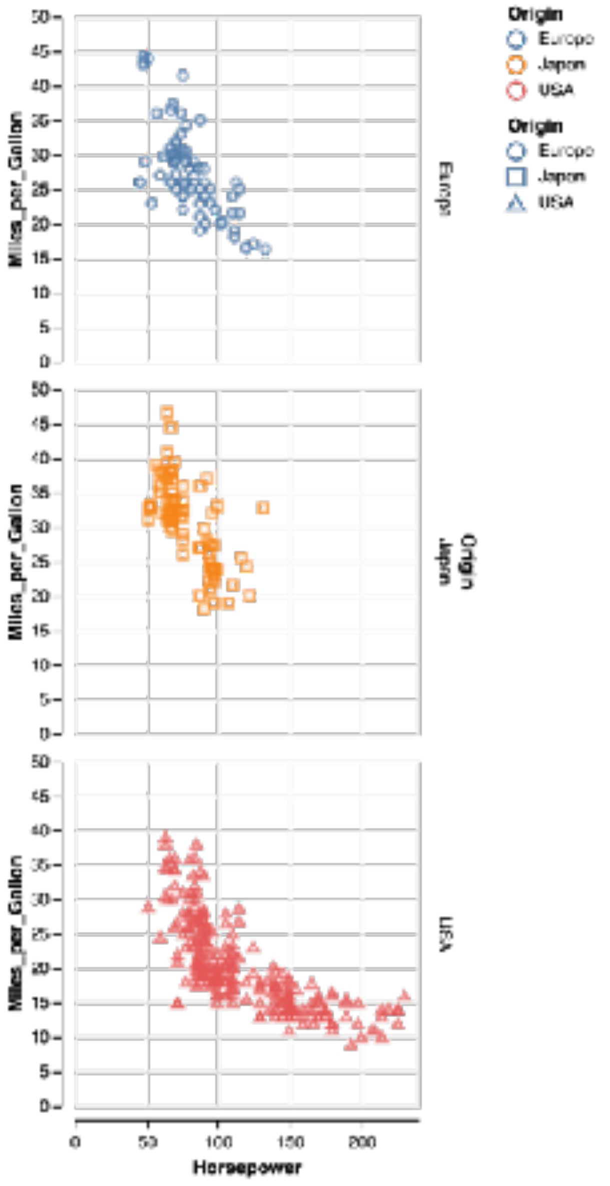
Scatterplot Matrix



Concatenated & Layered View

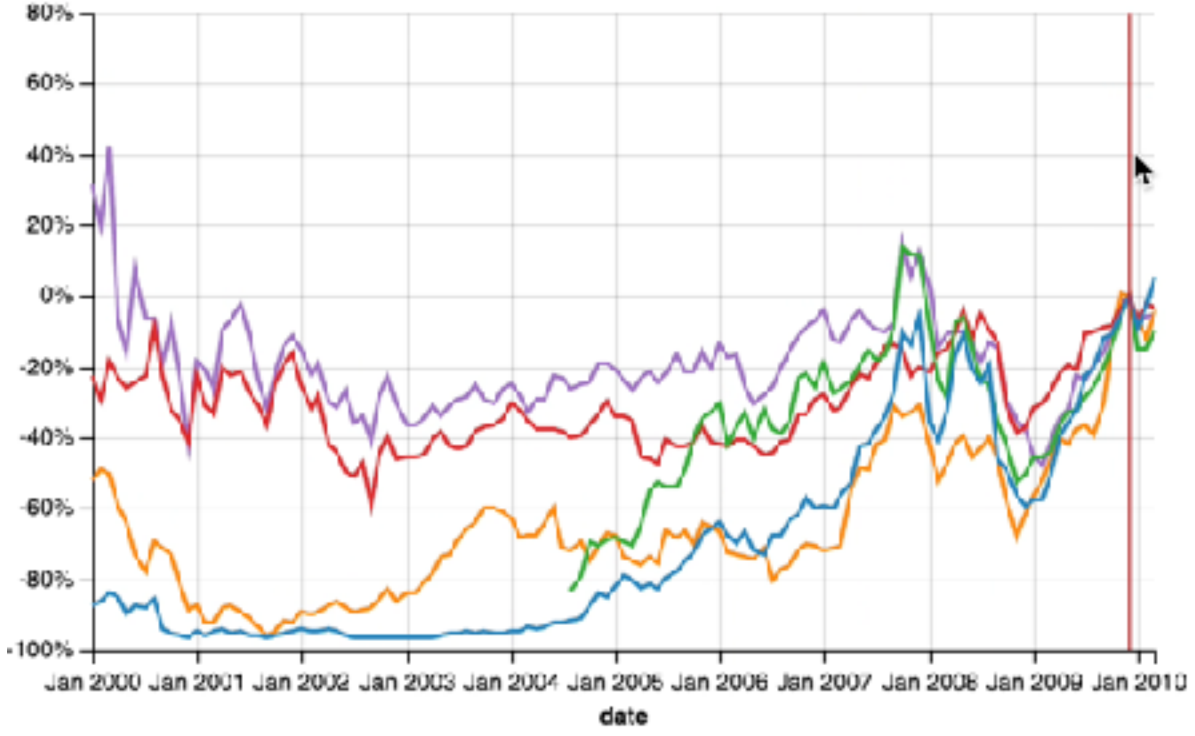


Faceted View

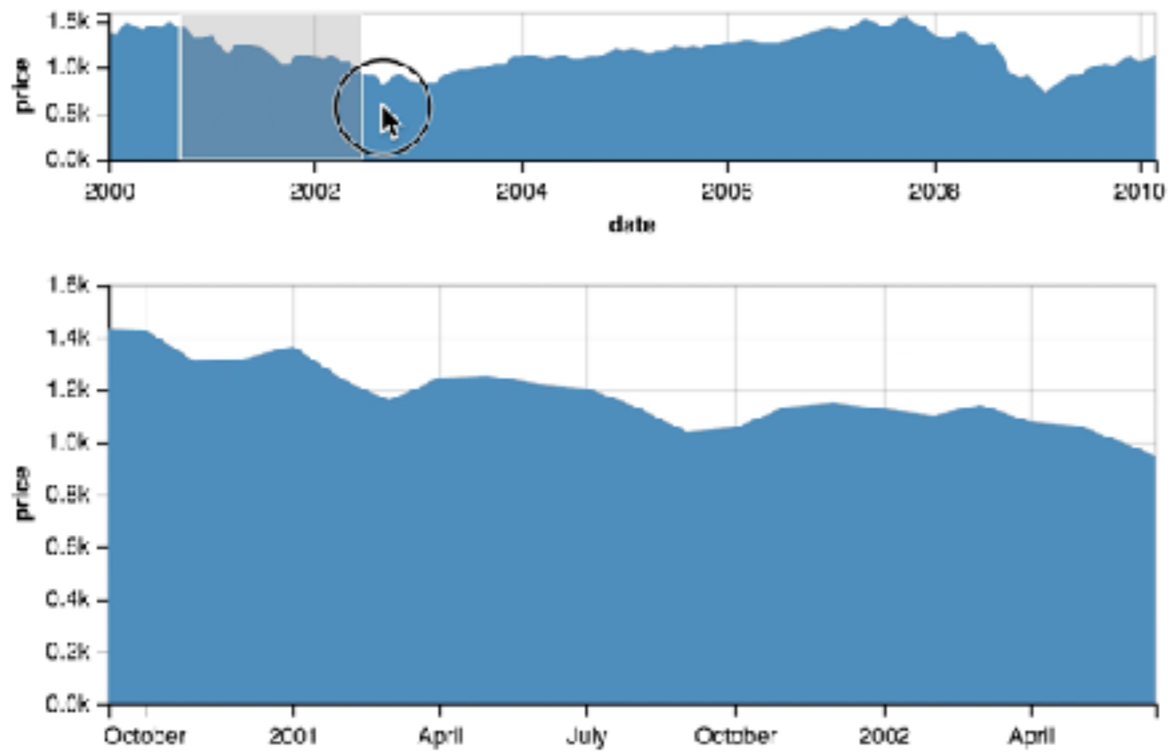


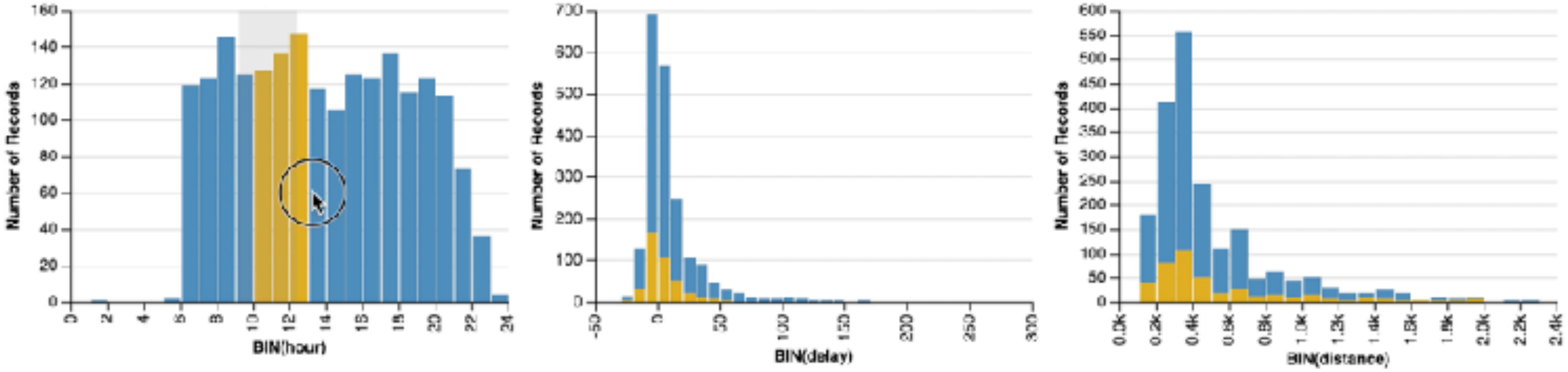
Interactive Multi-View Graphics

Indexed Chart



Focus+Context

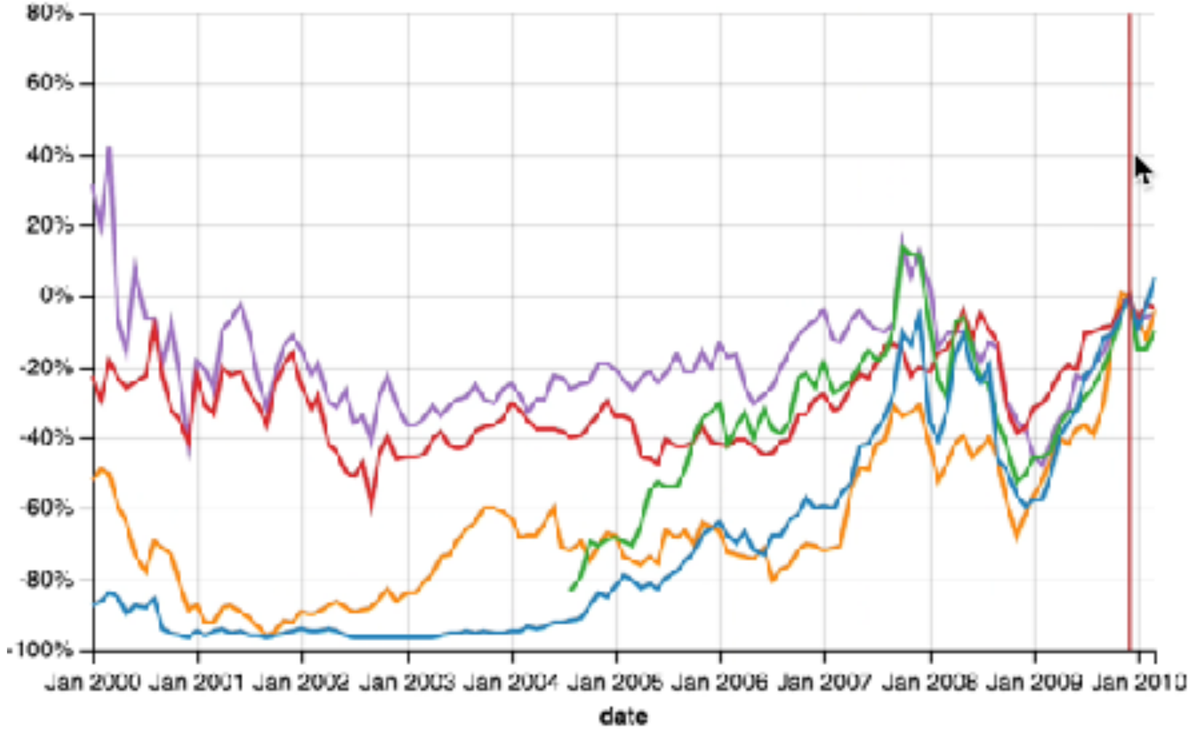




Cross-filtering

Interactive Multi-View Graphics

Indexed Chart



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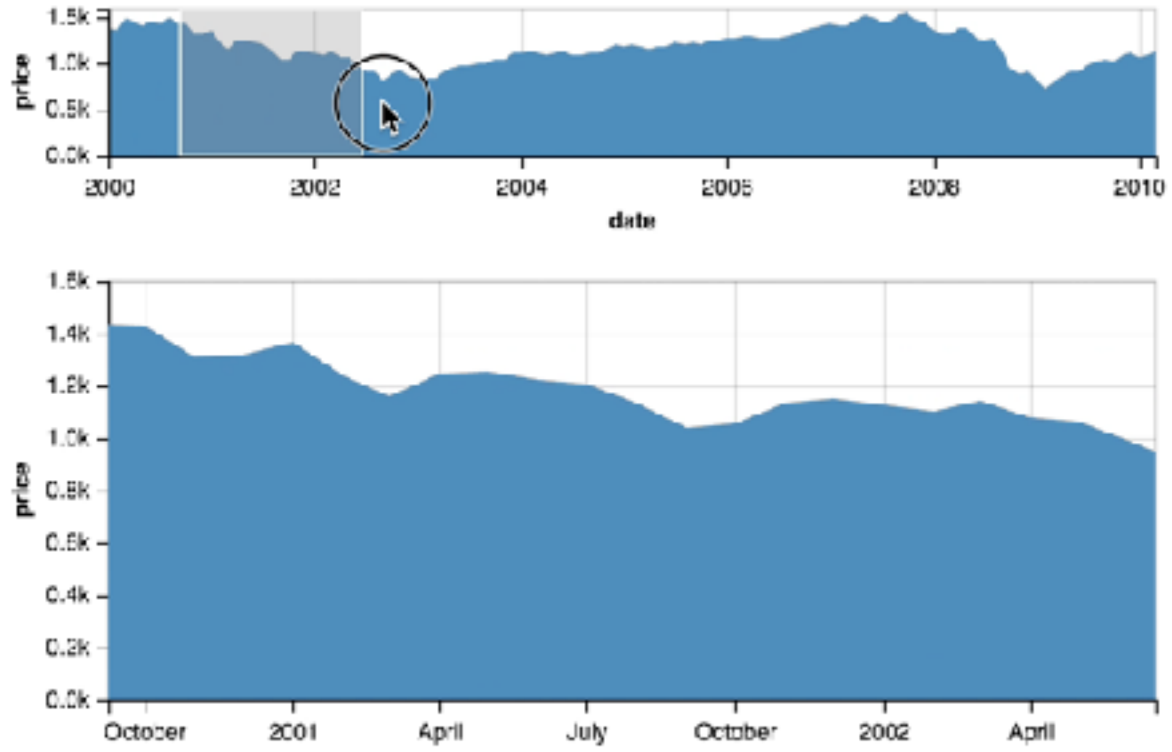

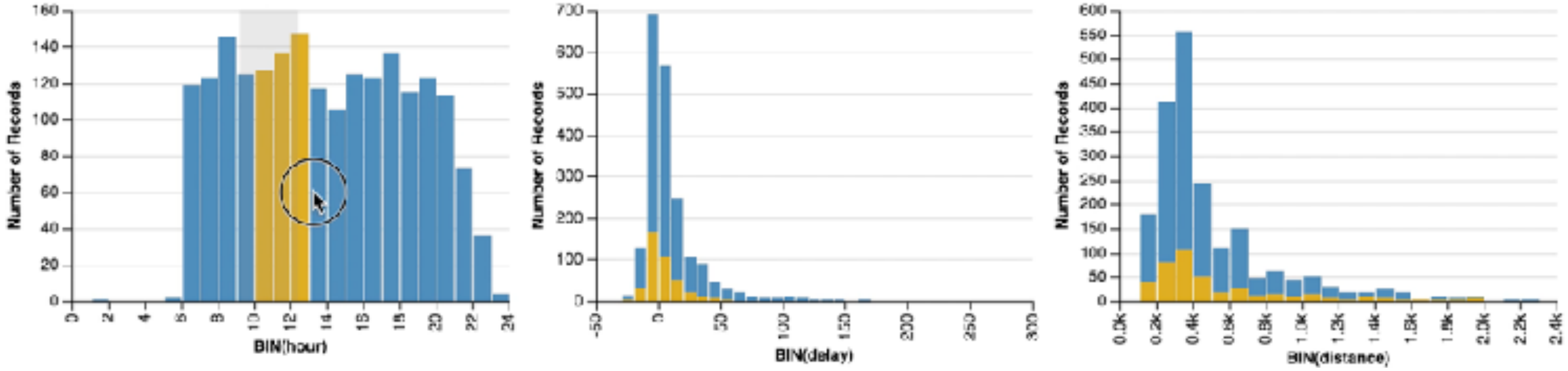

Cross-filtering

Altair: Vega-Lite in Python

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import altair as alt
from vega_datasets import data
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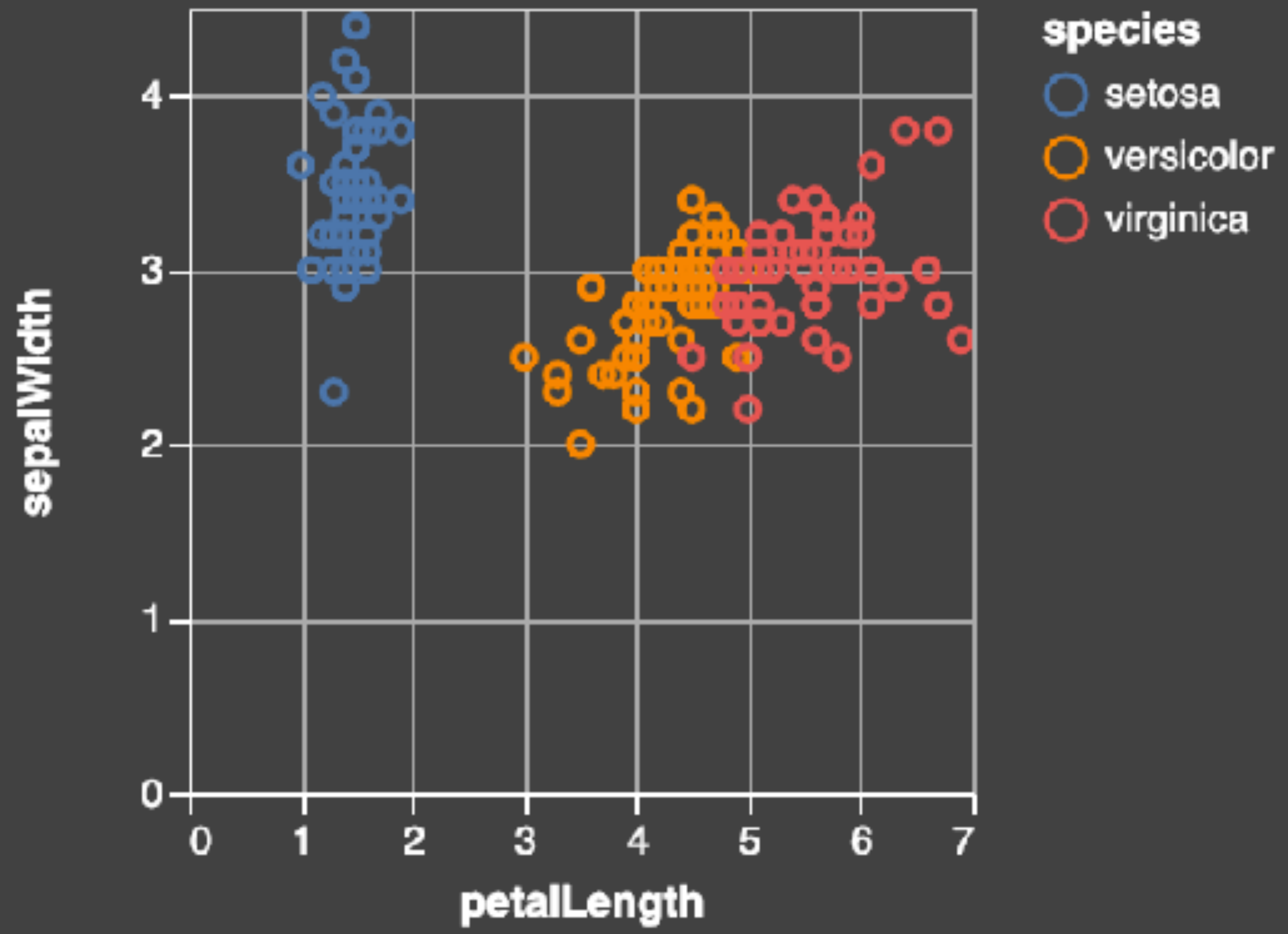

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iris = data.iris()
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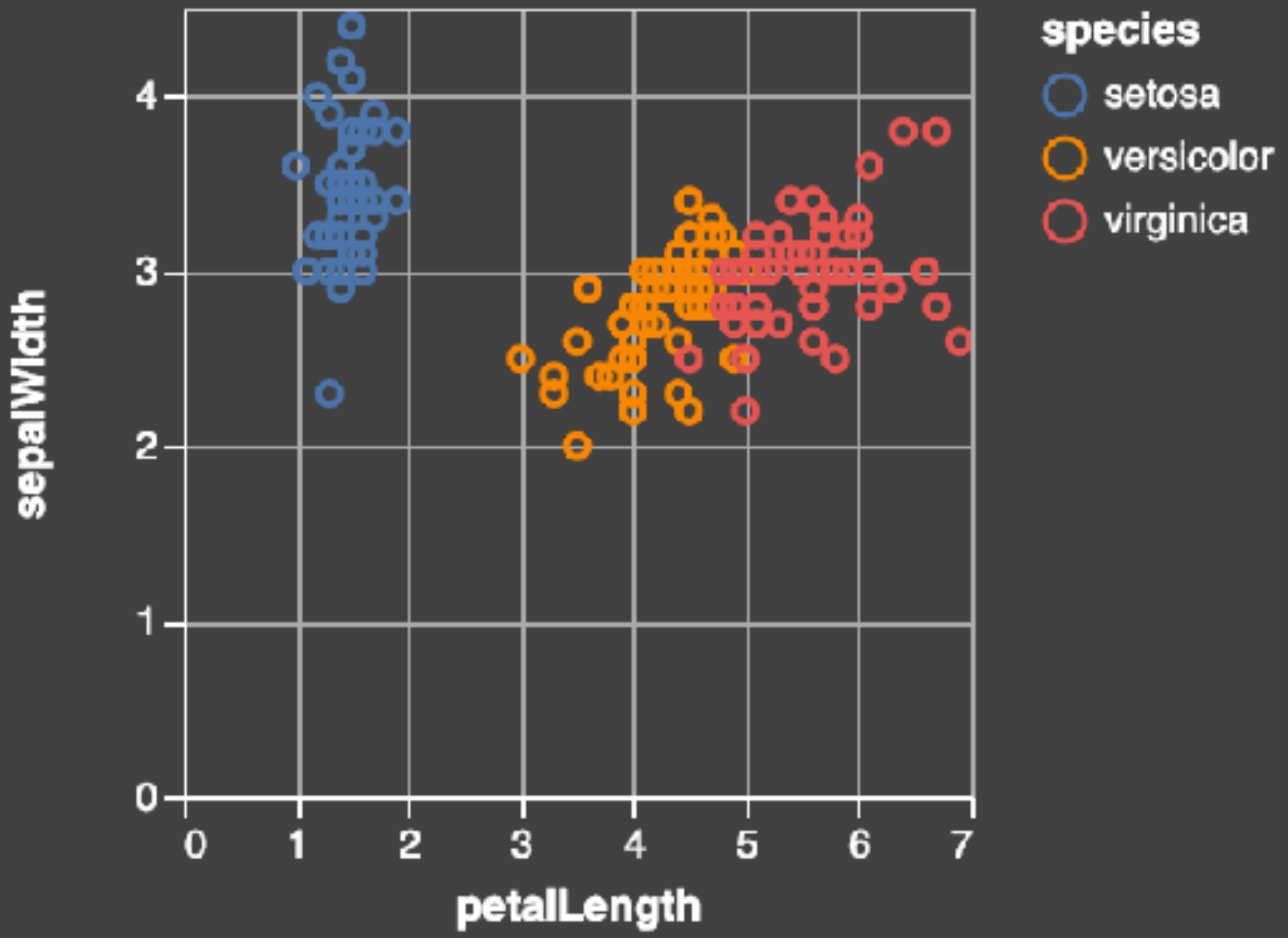

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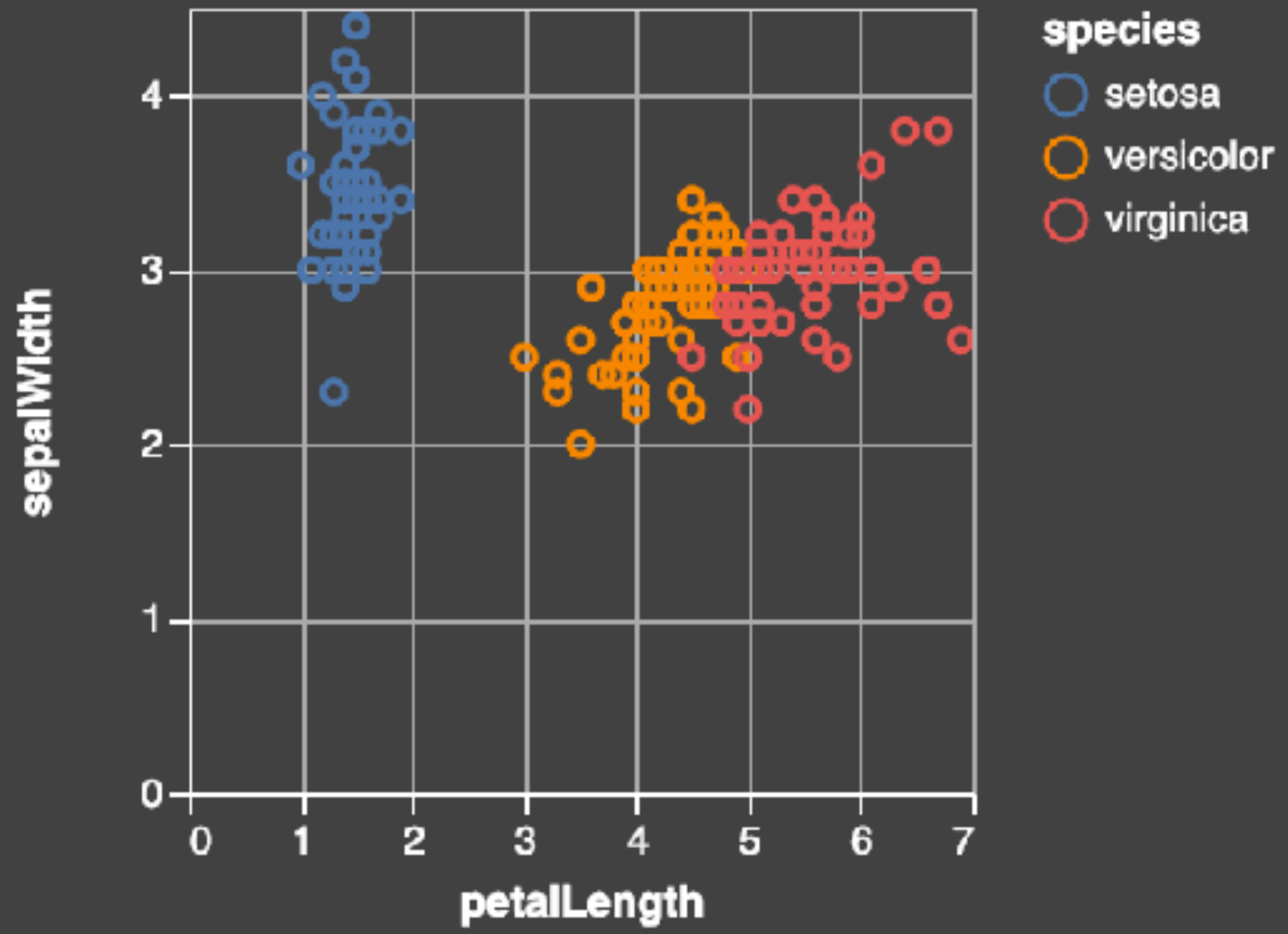

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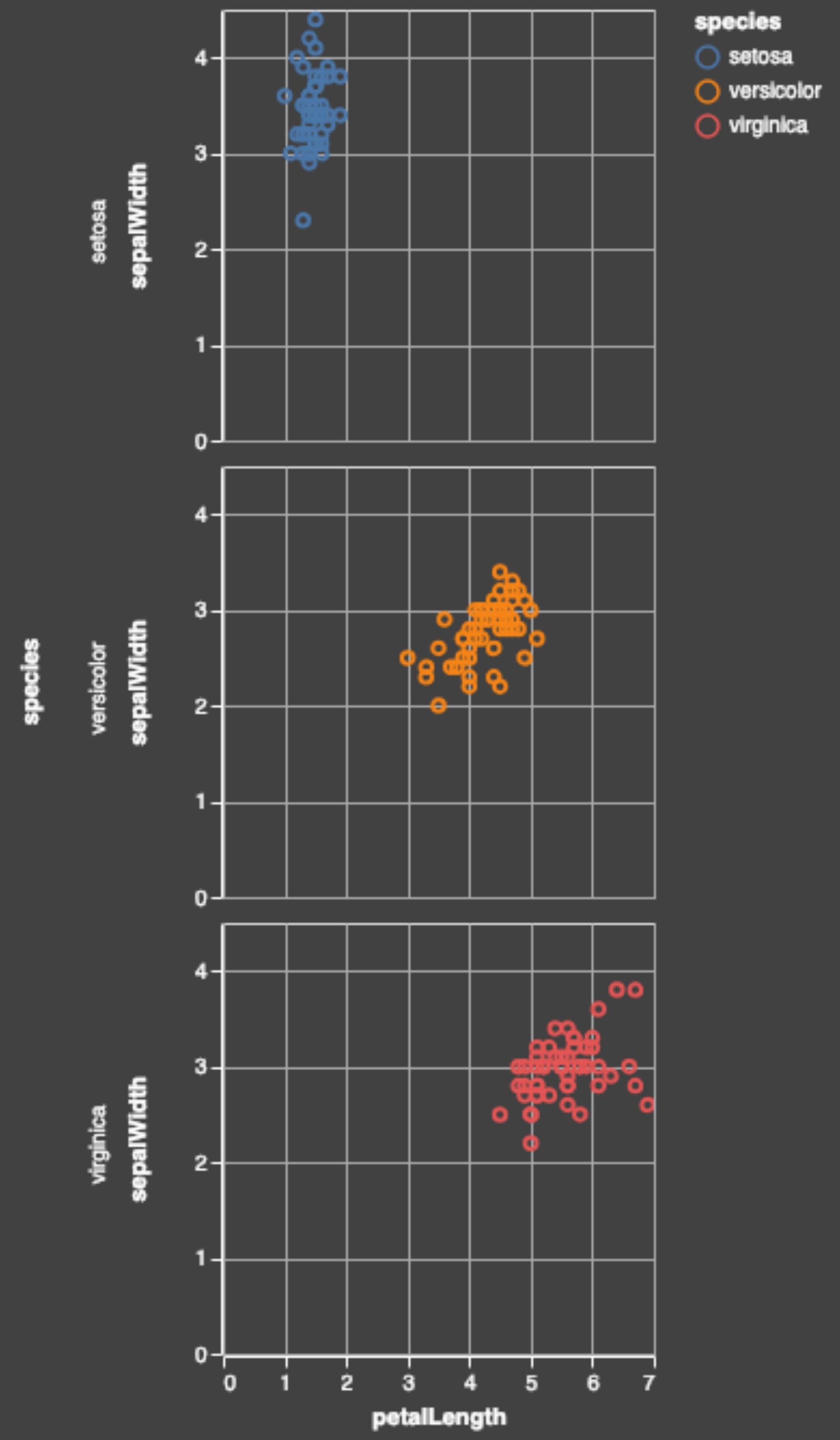

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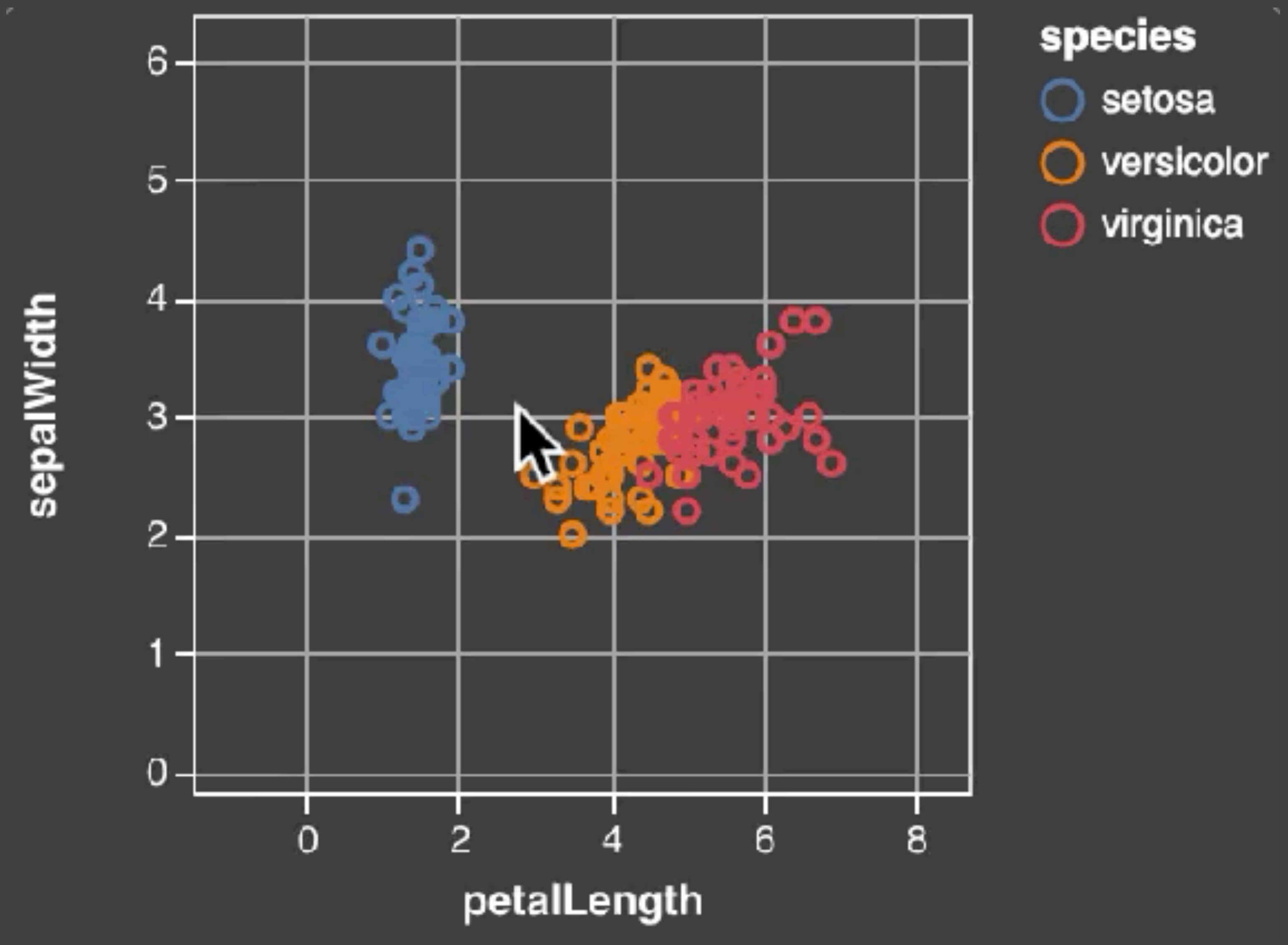

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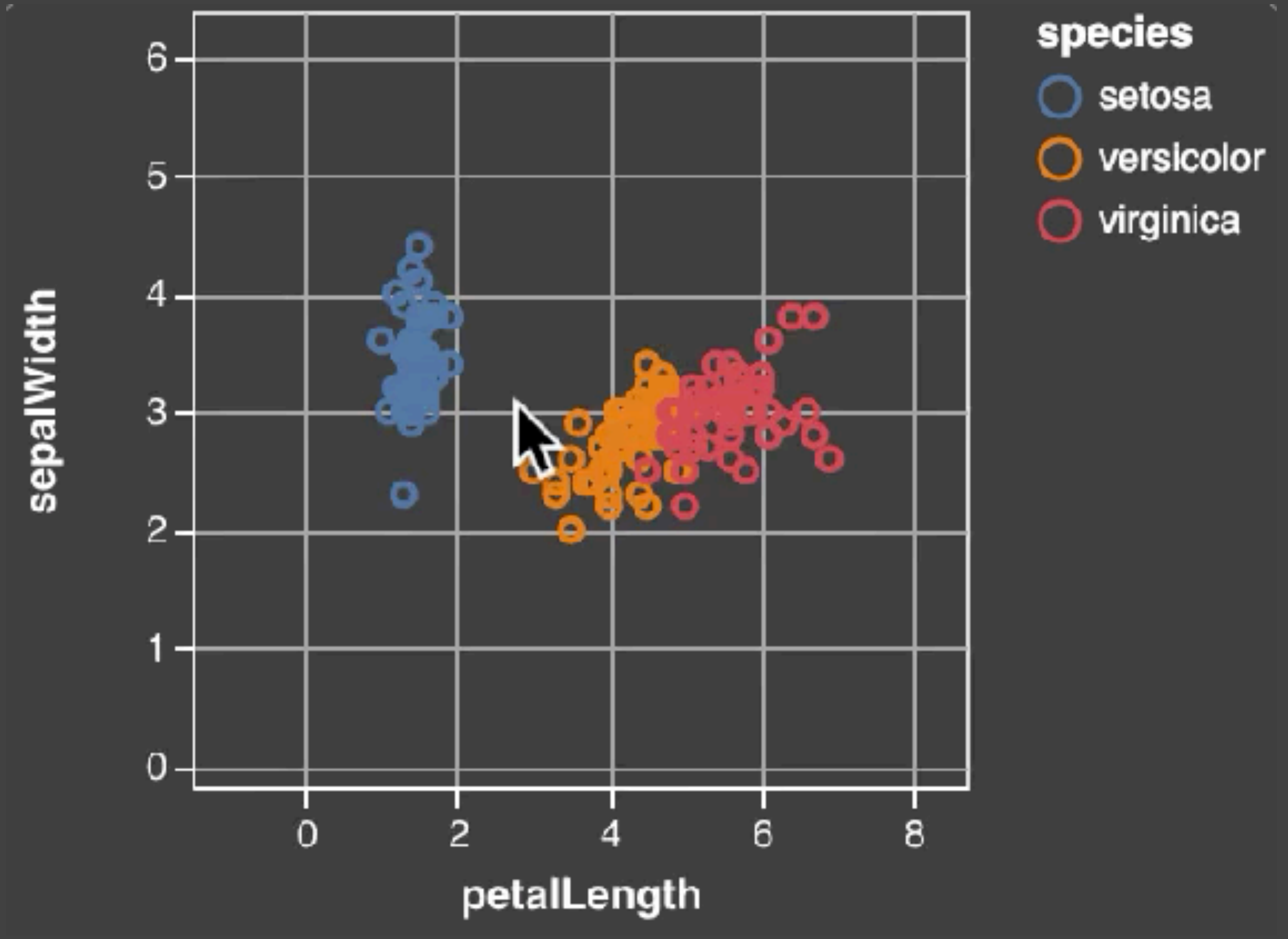

Learn more at

vega.github.io/vega-lite/

and altair-viz.github.io

used by

DeepMind

Uber

NETFLIX

LA Times

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airbnb

And many others…