

Learning {ggplot2} with generative art

Nicola Rennie

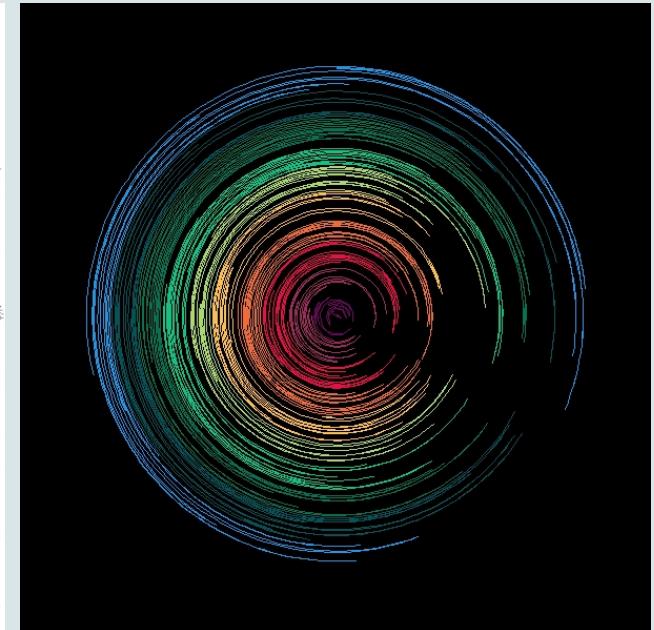
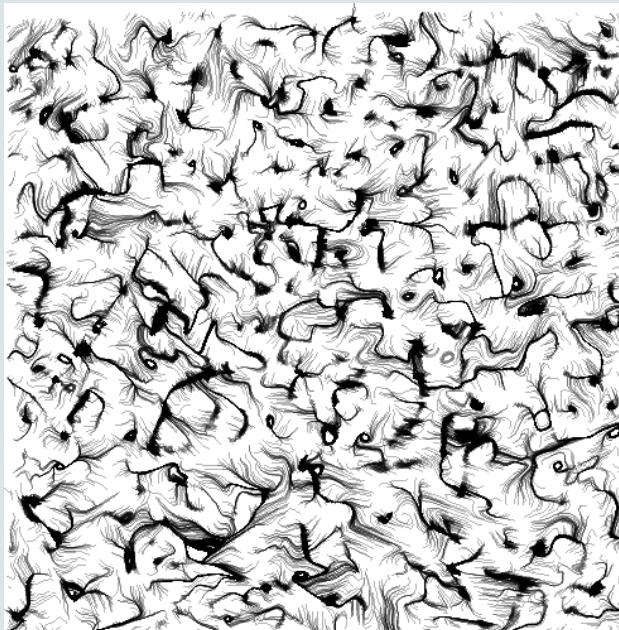
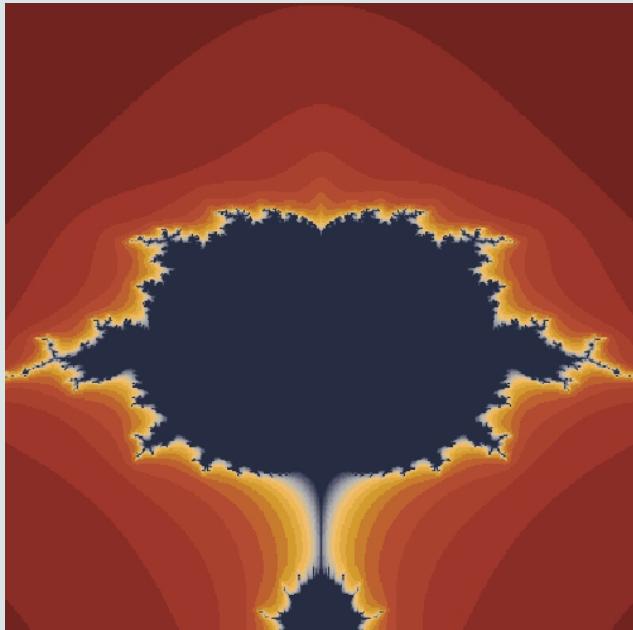
21 June 2022

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What is generative art?

“Generative art is art made using a predetermined system that often includes an element of chance.” - Tate (tate.org.uk)



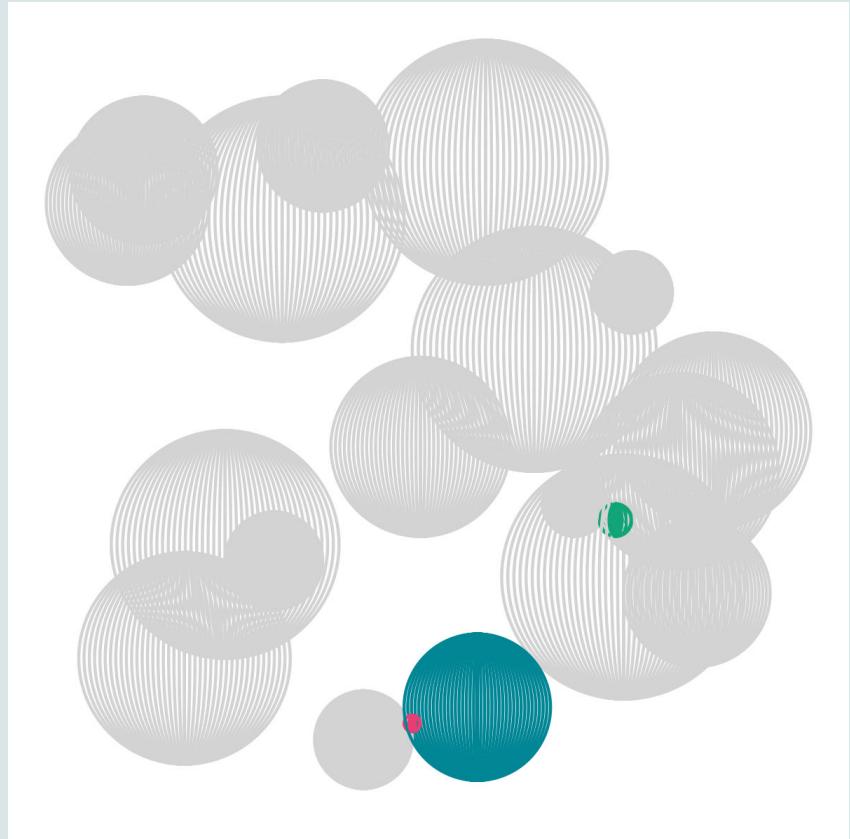
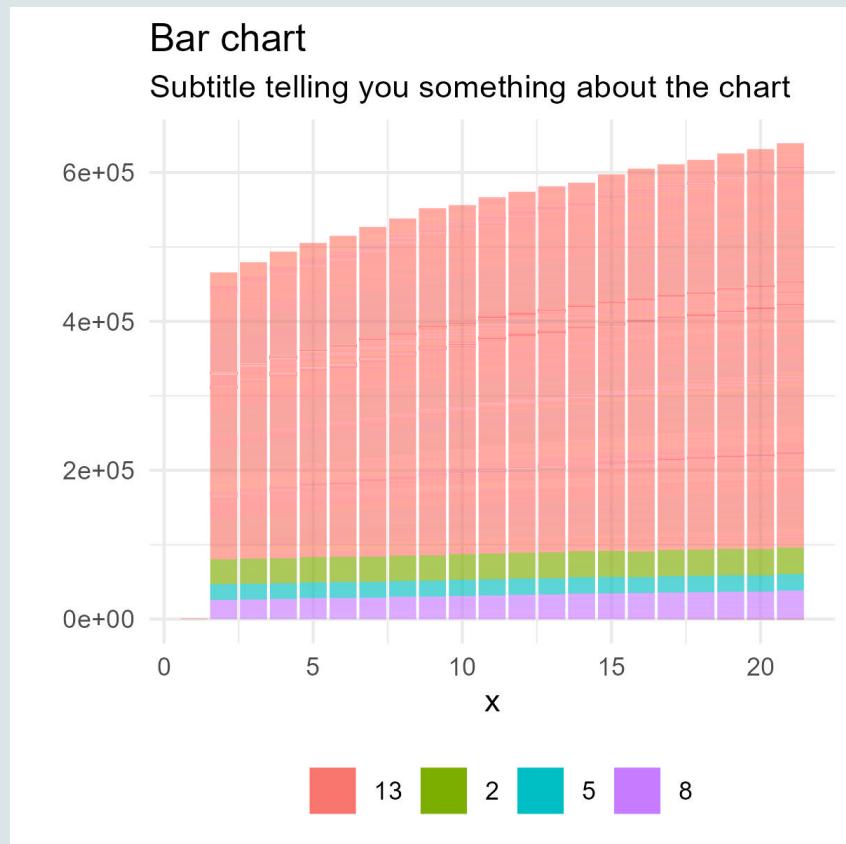
Why is generative art useful?

- You don't need to learn {ggplot2} to use {ggplot2}
- You can't Google art
- It's fun!

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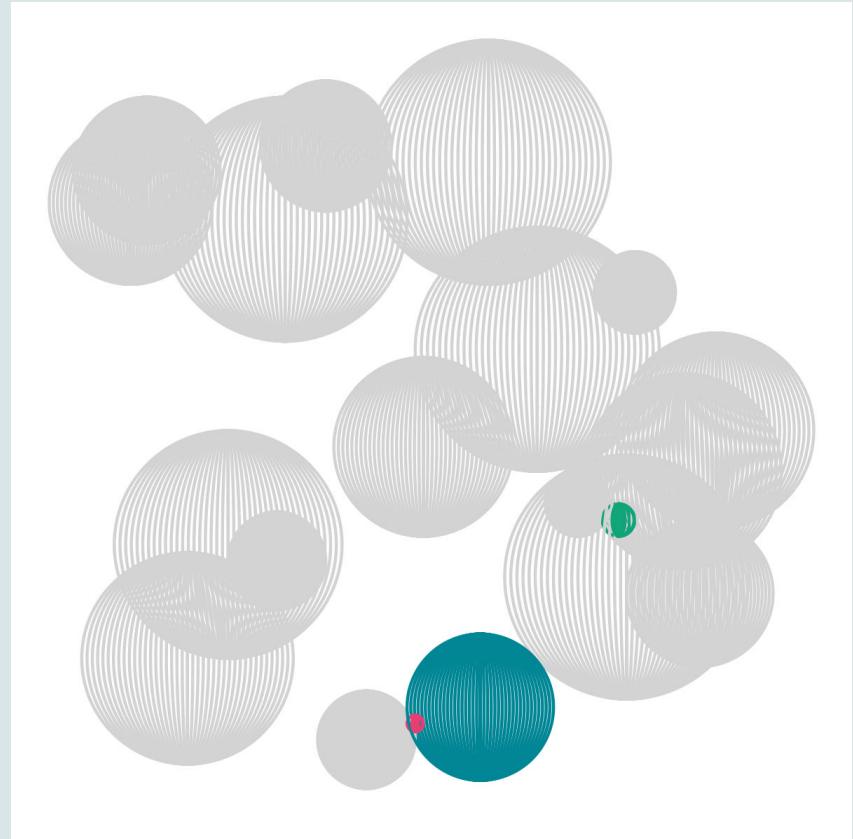
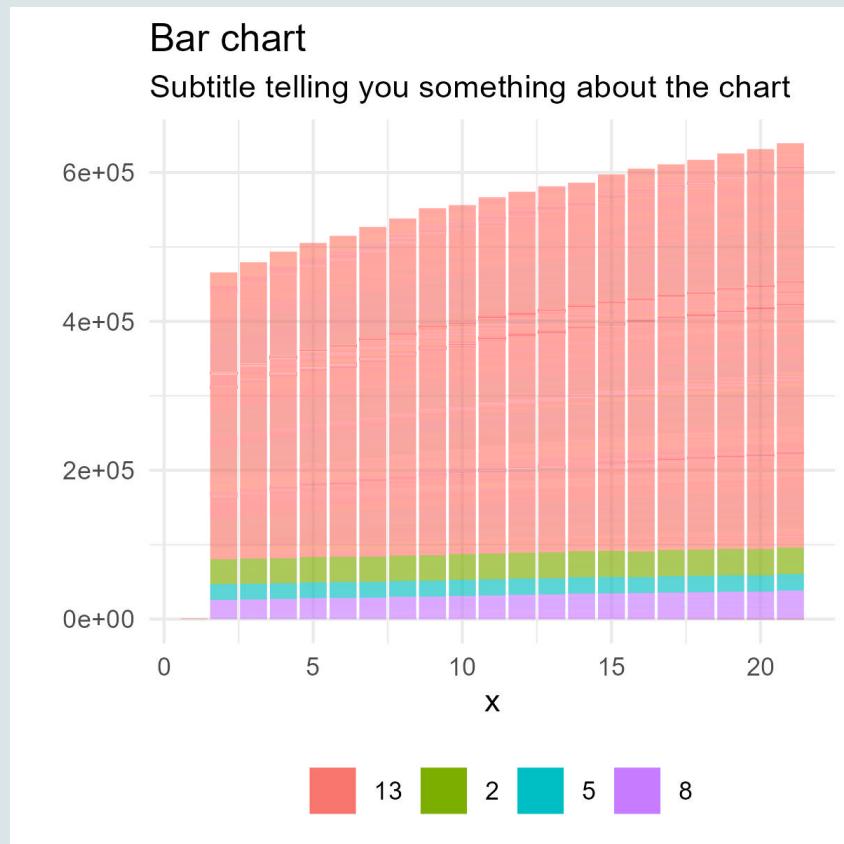
Spot the difference!



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Spot the difference!

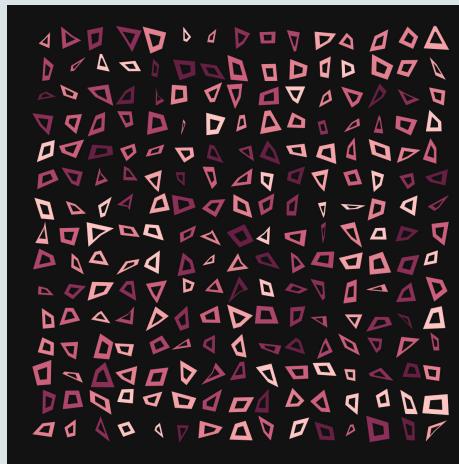
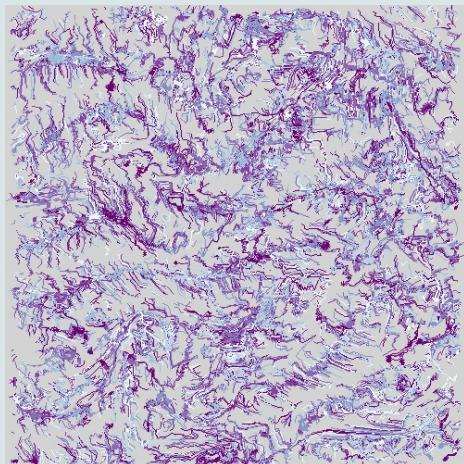
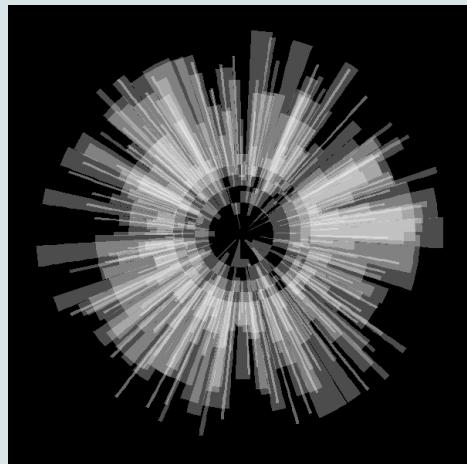


Everything! (except the data...)

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Layers of layers

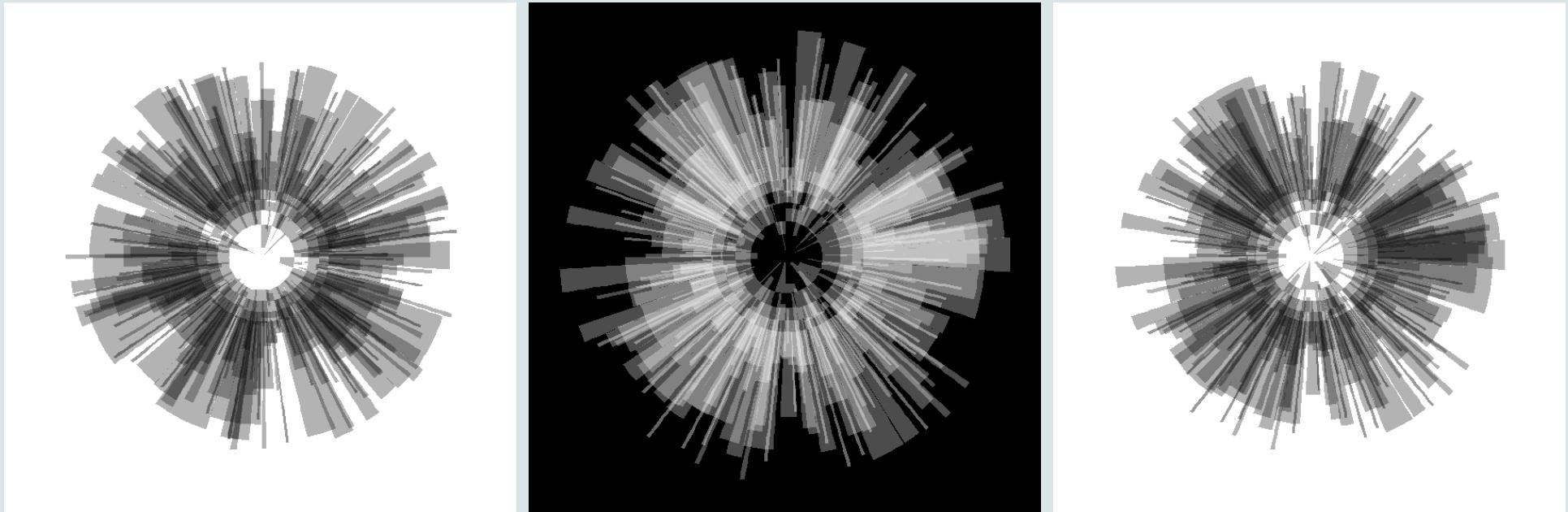
“A layer is a combination of data, stat and geom with a potential position adjustment.”

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Layers of layers

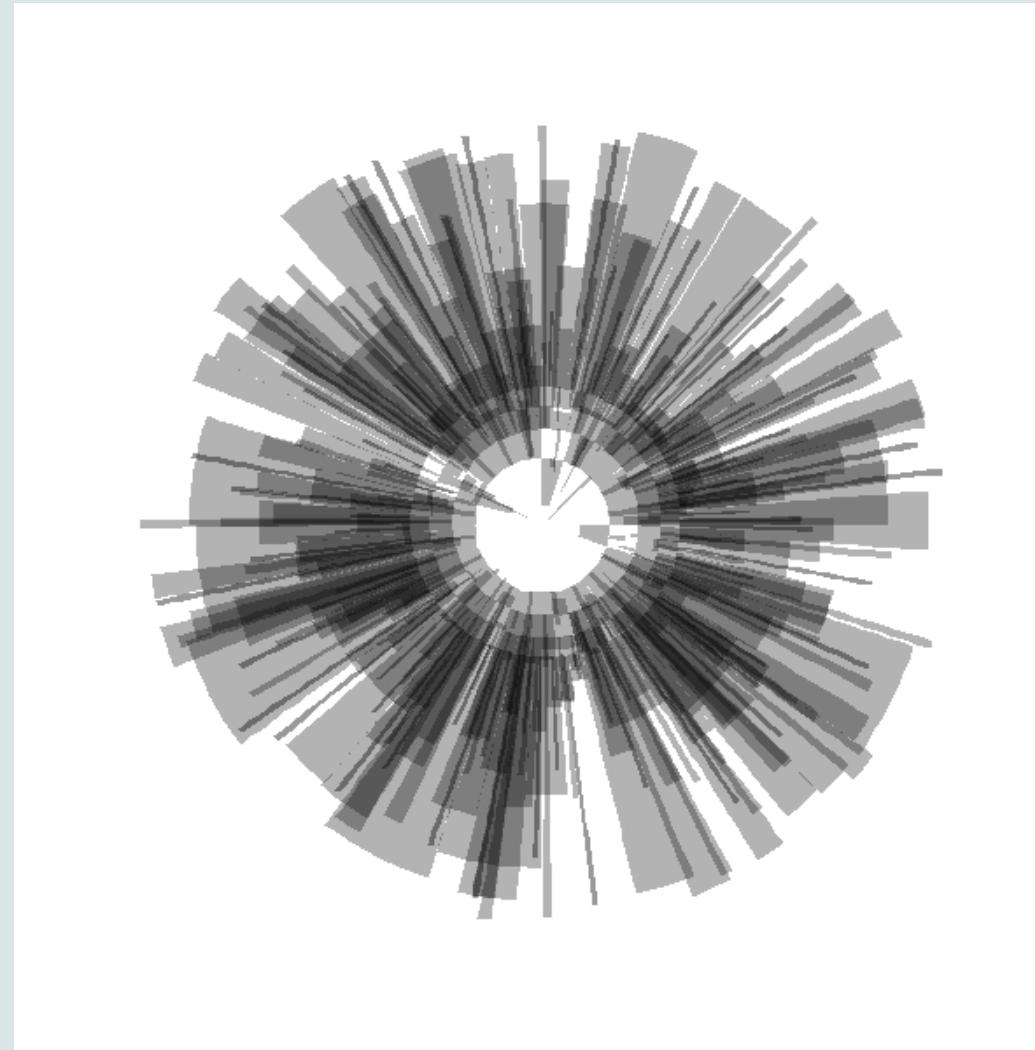
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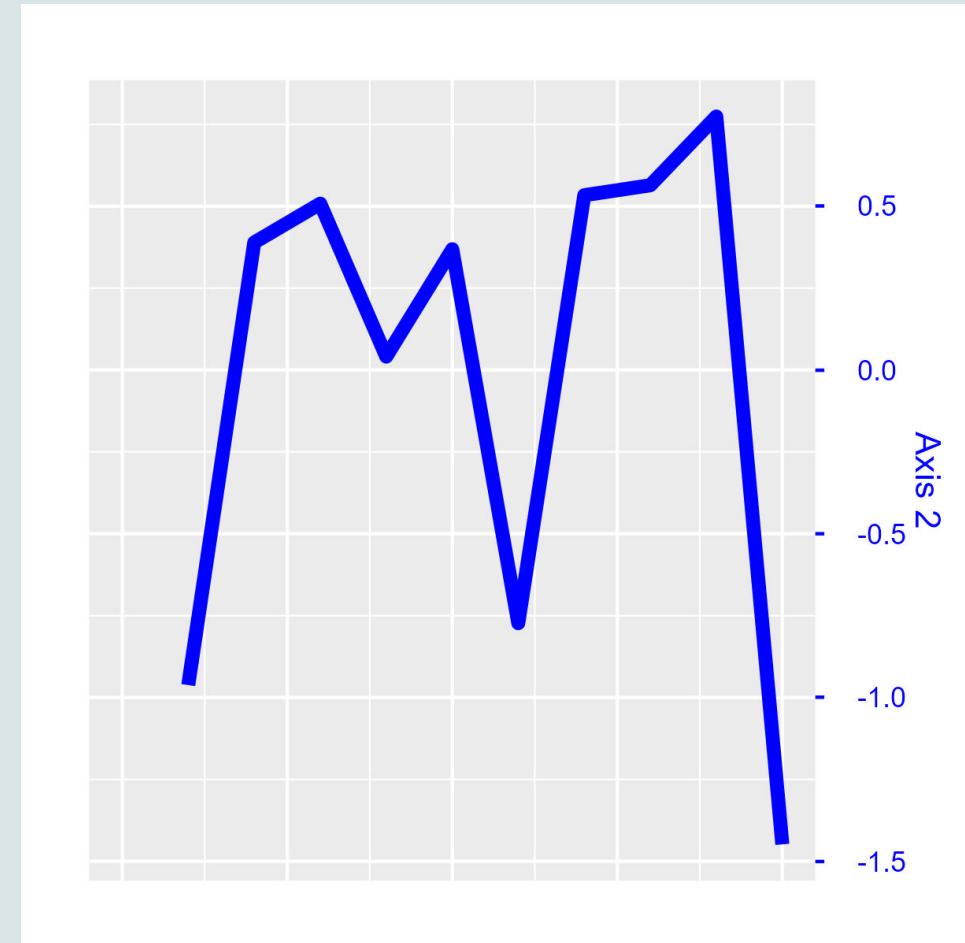
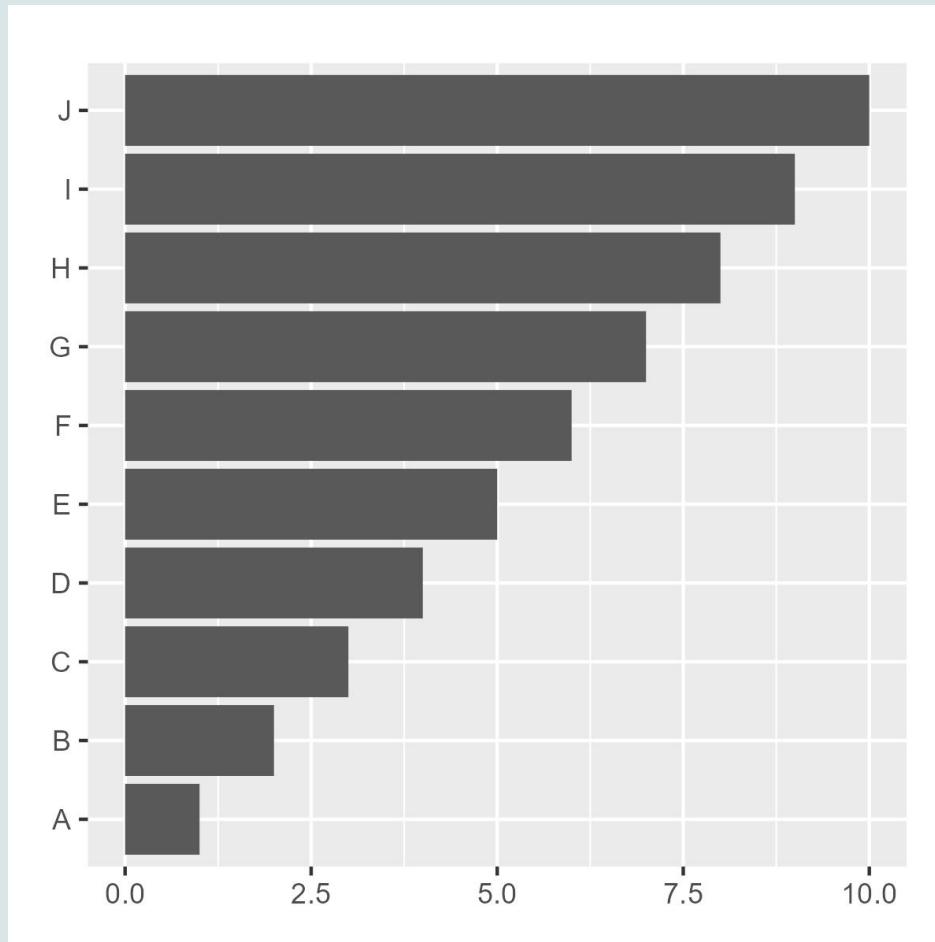
Layers of layers



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Layers of layers



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Layers of layers

Error: Discrete value supplied to continuous scale

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Layers of layers

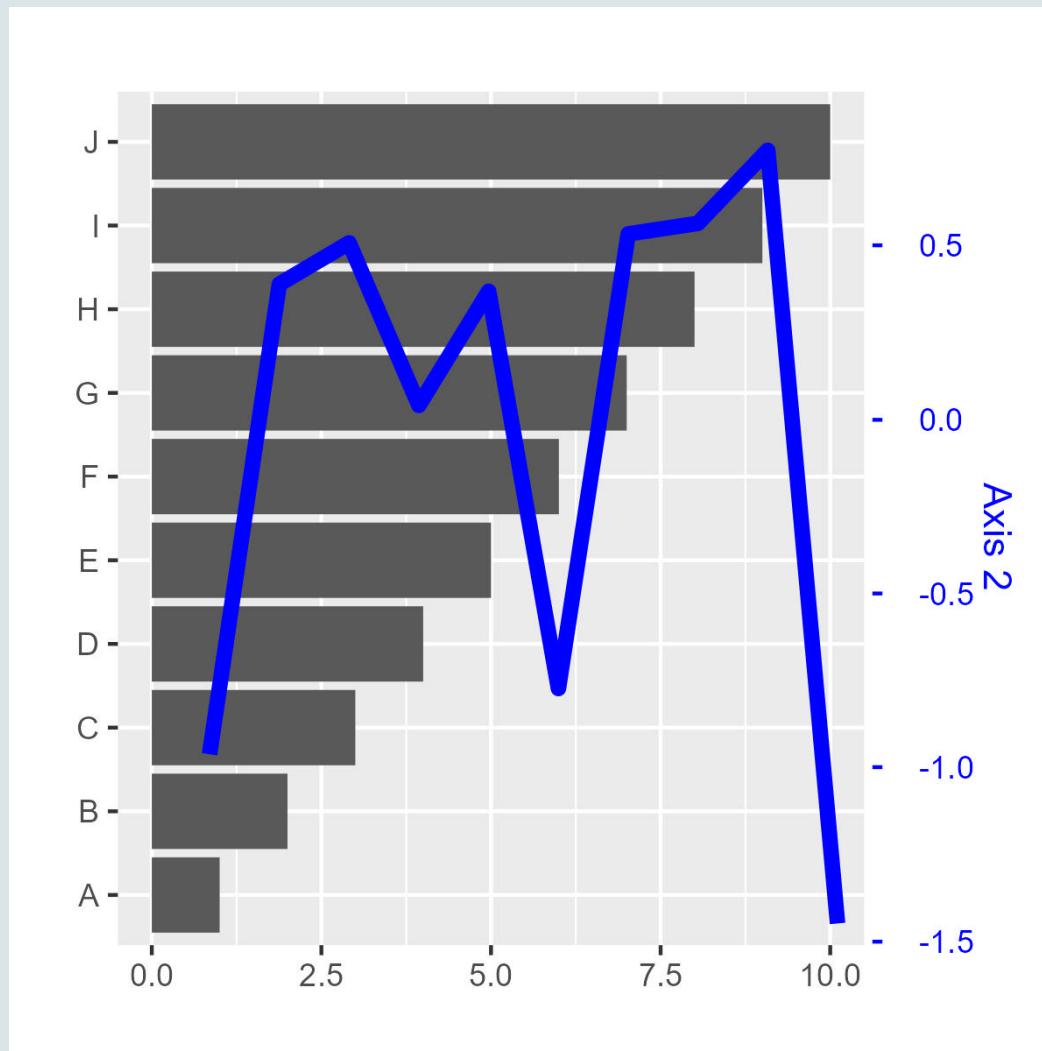
Instead of layers of geoms, we can construct layers of ggplots using {patchwork}...

Layers of layers

Instead of layers of geoms, we can construct layers of ggplots using {patchwork}...

```
1 p1 + inset_element(p2 +
2                         theme(
3                             plot.background = element_blank(),
4                             panel.background = element_blank(),
5                             panel.grid = element_blank())),
6                         left = 0, bottom = 0, right = 1, top = 1,
7                         align_to = "full")
```

Layers of layers

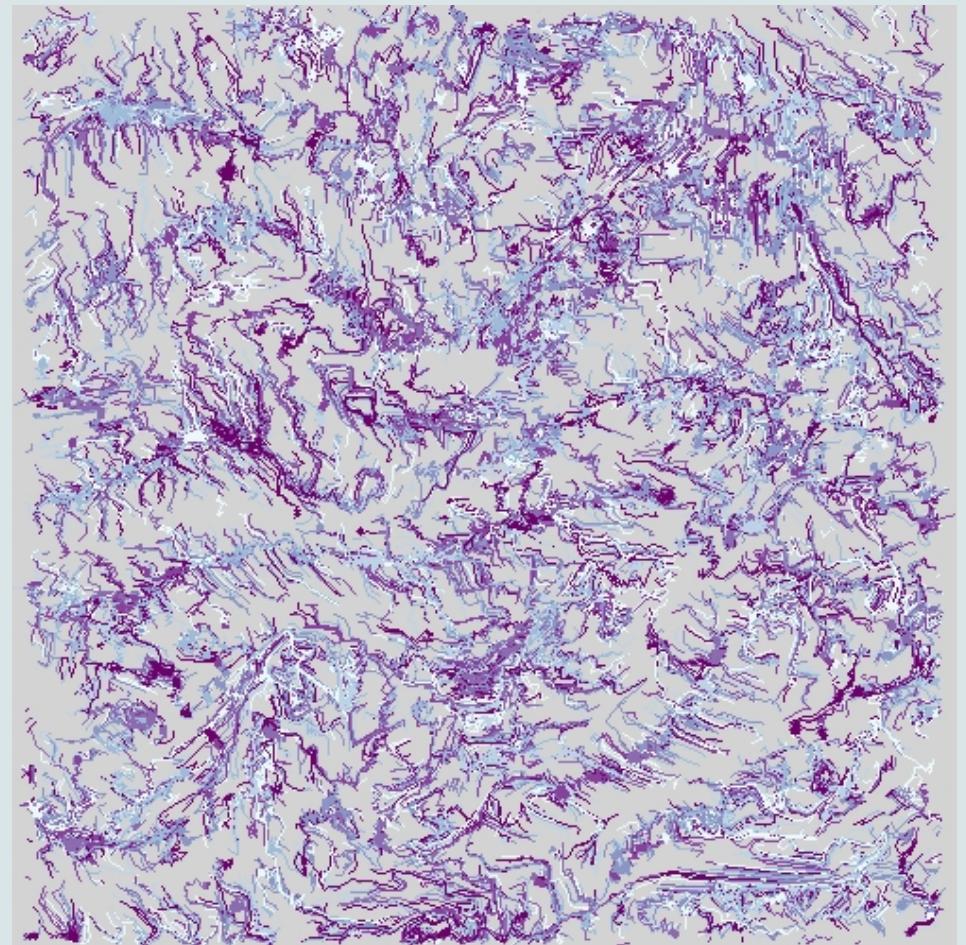


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Lesser-spotted geoms

`geom_path()`



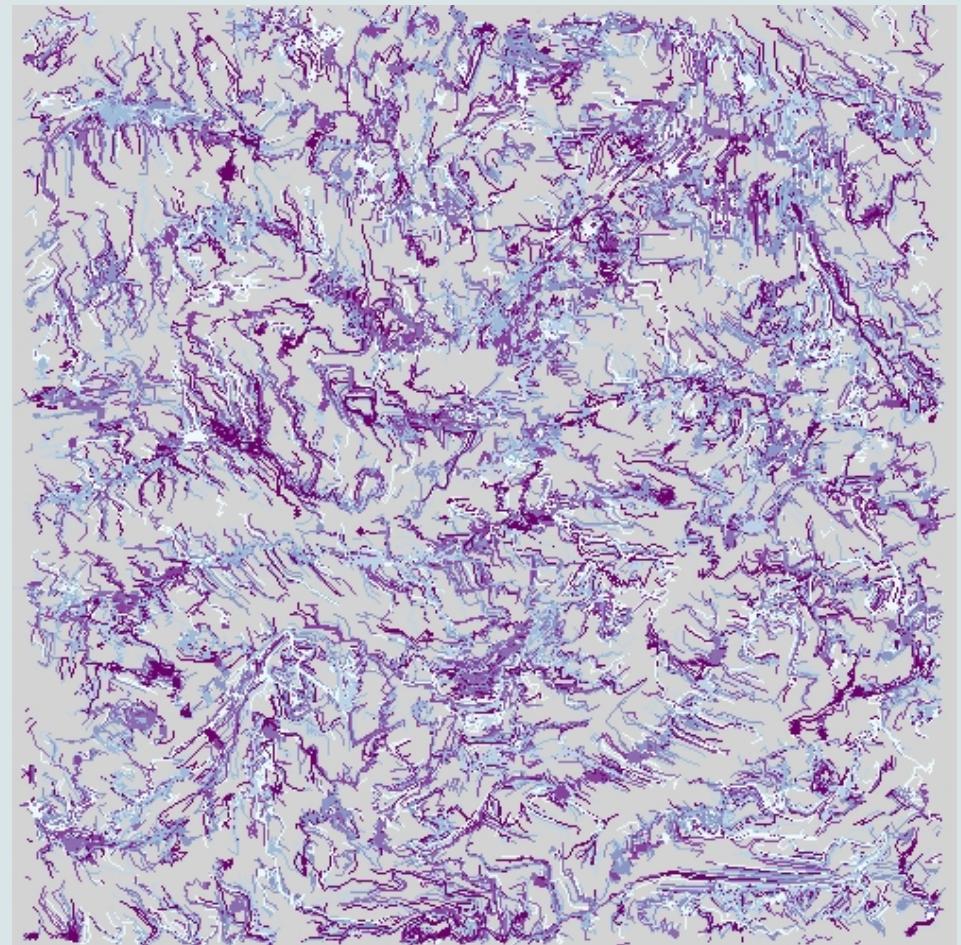
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Lesser-spotted geoms

`geom_path()`

- Plotting positions or trajectories
- Arrows in flowcharts

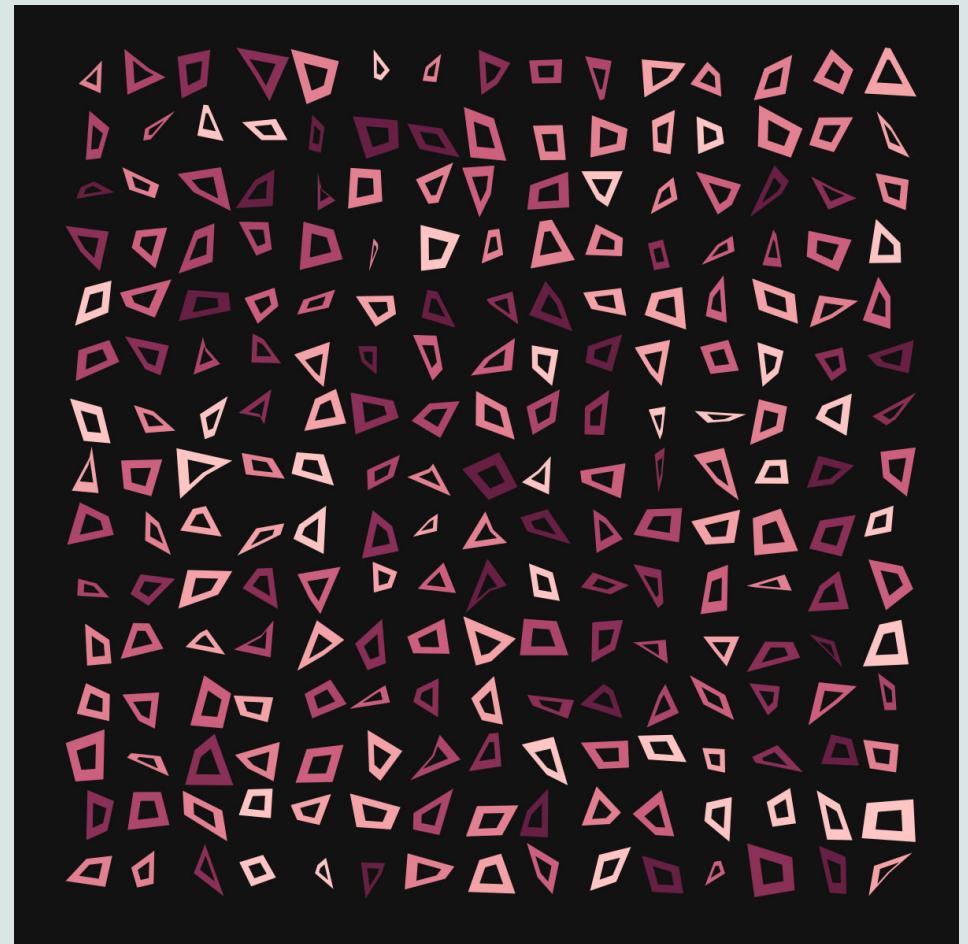


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Lesser-spotted geoms

geom_polygon()



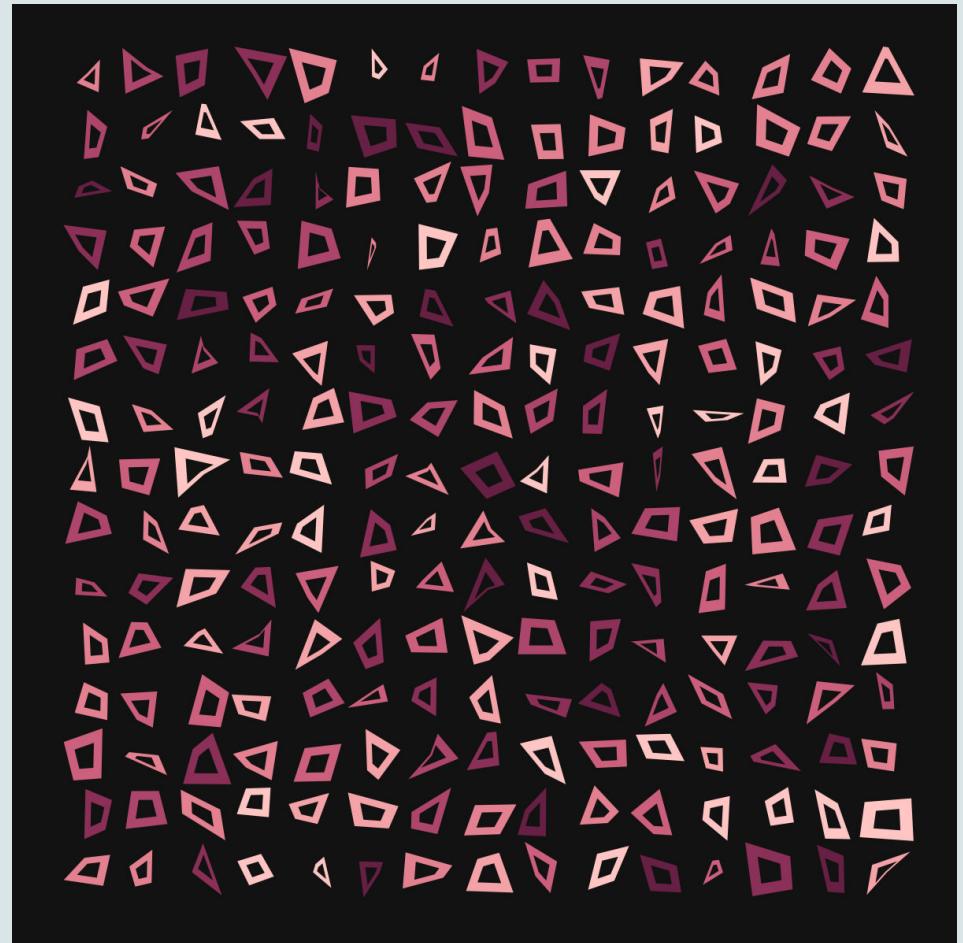
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Lesser-spotted geoms

`geom_polygon()`

- Highlighting points that lie within a critical region
- Highlighting areas on maps
- Drawing large arrows / triangles on flowchart diagrams

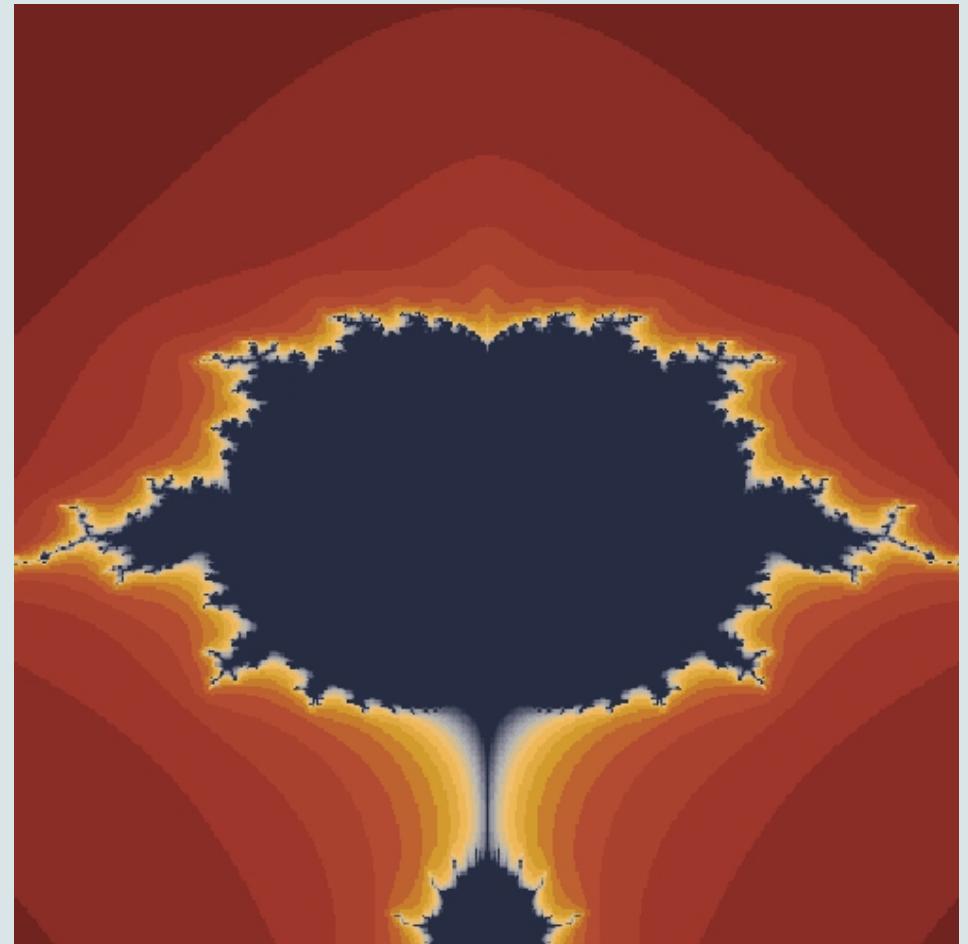


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Lesser-spotted geoms

`geom_raster()`



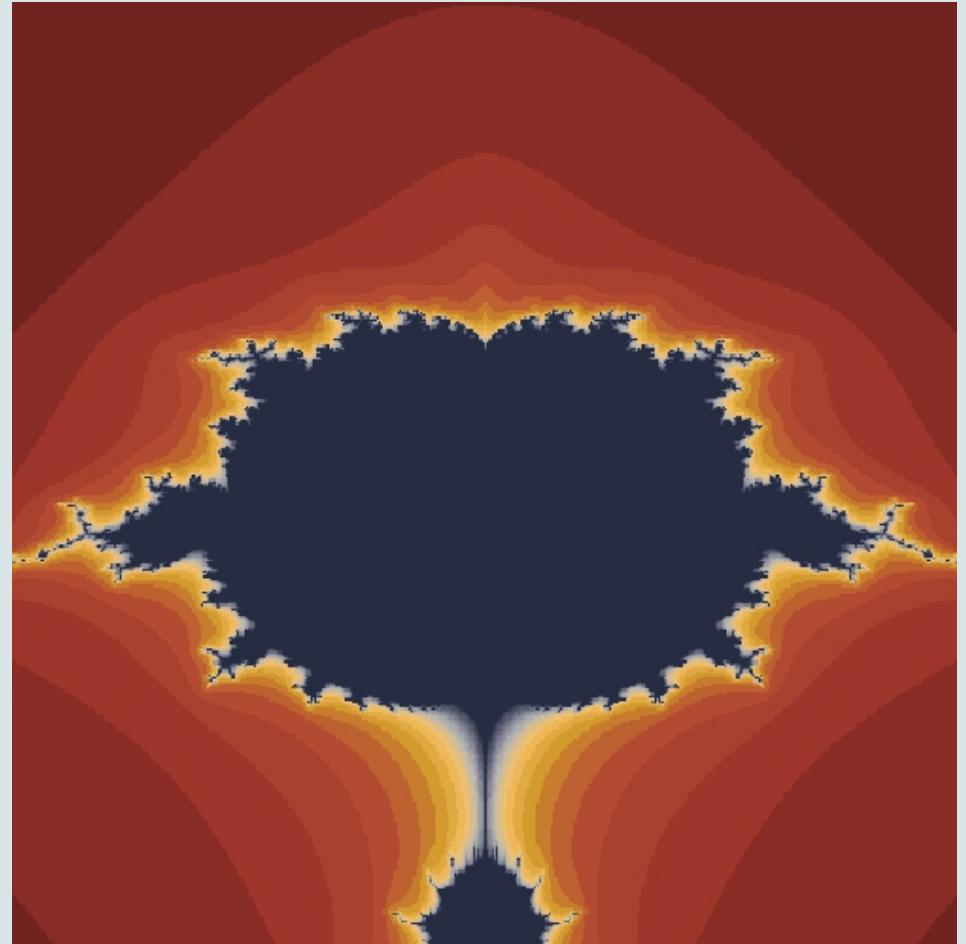
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Lesser-spotted geoms

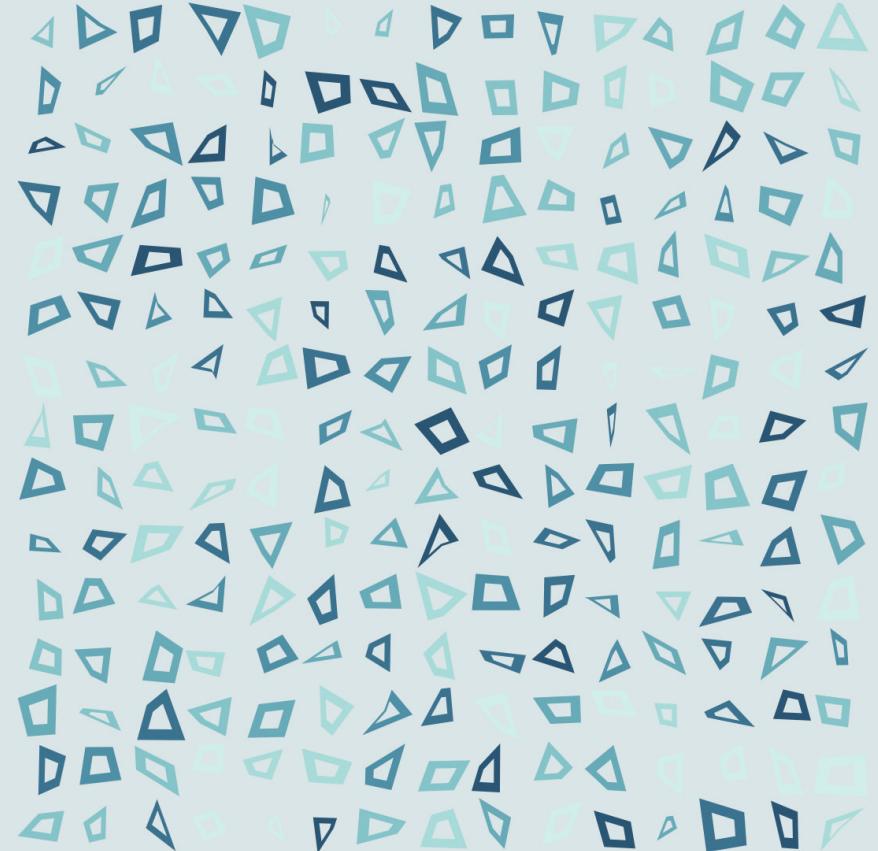
geom_raster()

- Speed
 - geom_point(): 5.5s
 - geom_tile(): 1.3s
 - geom_raster(): 0.6s
- Alternative to geom_point()
for (very) high-dimensional
data?



Thank you!

- [@nrennie35](https://twitter.com/nrennie35)
- github.com/nrennie
- nrennie.rbind.io
- jumpingrivers.com



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