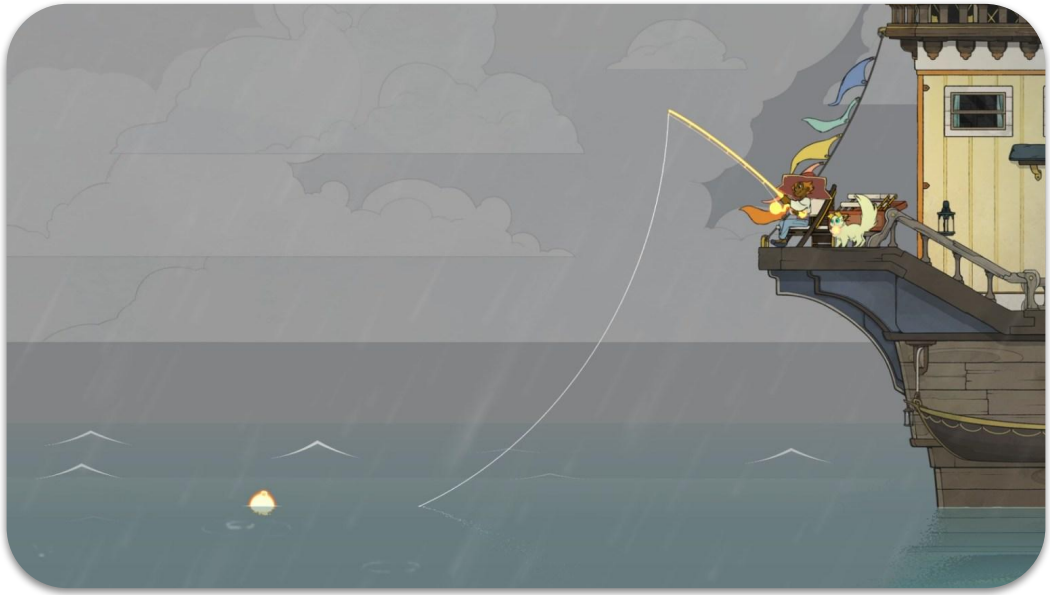

Architecture

A Samuel Pottinger
Stat 198: IDSV
April 7, 2025

Quick note about the rest of class

Wednesday (make up on Friday): Interactive experience discussions

Friday: BART visualization

Monday: Interactive visualization extension (assigned today)

May 14: Final project (assigned on Wednesday)

Today

- **Example of level design.**
- Three architectures applied to data visualization from games.
- Revisiting the AFSC GAP visualization.
- Mario Level 1-1

An example of level design / architecture

Today

- Example of level design.
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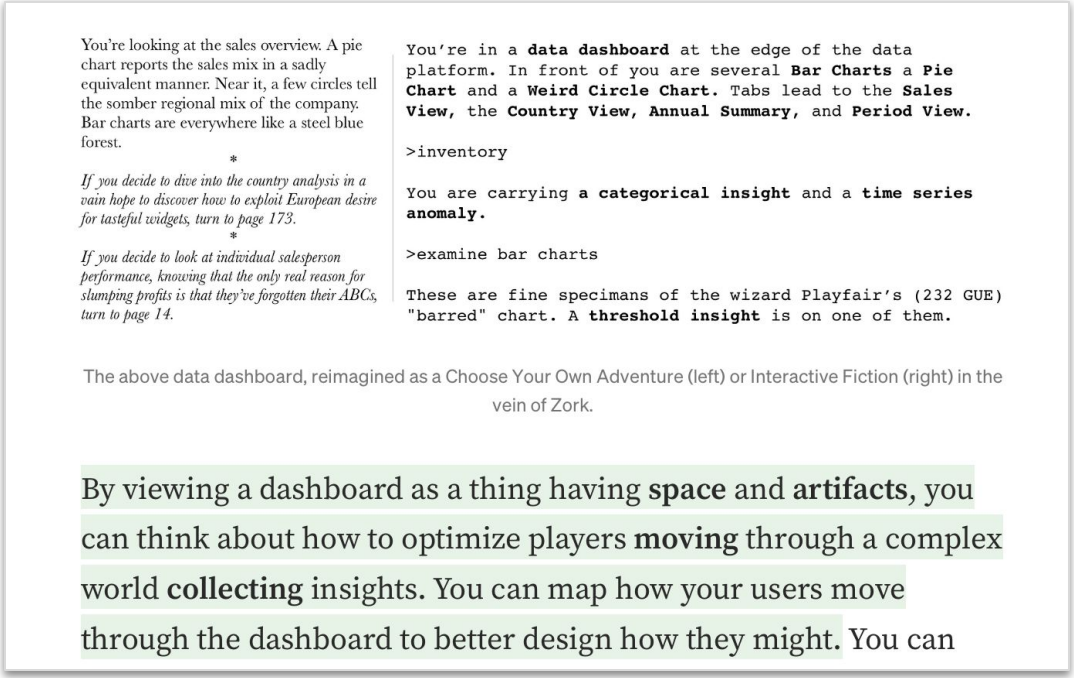
Architecture 3: Levels



You're looking at the sales overview. A pie chart reports the sales mix in a sadly equivalent manner. Near it, a few circles tell the somber regional mix of the company. Bar charts are everywhere like a steel blue forest.

*

If you decide to dive into the country analysis in a vain hope to discover how to exploit European desire for tasteful widgets, turn to page 173.

*

If you decide to look at individual salesperson performance, knowing that the only real reason for slumping profits is that they've forgotten their ABCs, turn to page 14.

You're in a **data dashboard** at the edge of the data platform. In front of you are several **Bar Charts** a **Pie Chart** and a **Weird Circle Chart.** Tabs lead to the **Sales View,** the **Country View, Annual Summary,** and **Period View.**

>inventory

You are carrying **a categorical insight** and a **time series anomaly.**

>examine bar charts

These are fine specimans of the wizard Playfair's (232 GUE) "barred" chart. A **threshold insight** is on one of them.

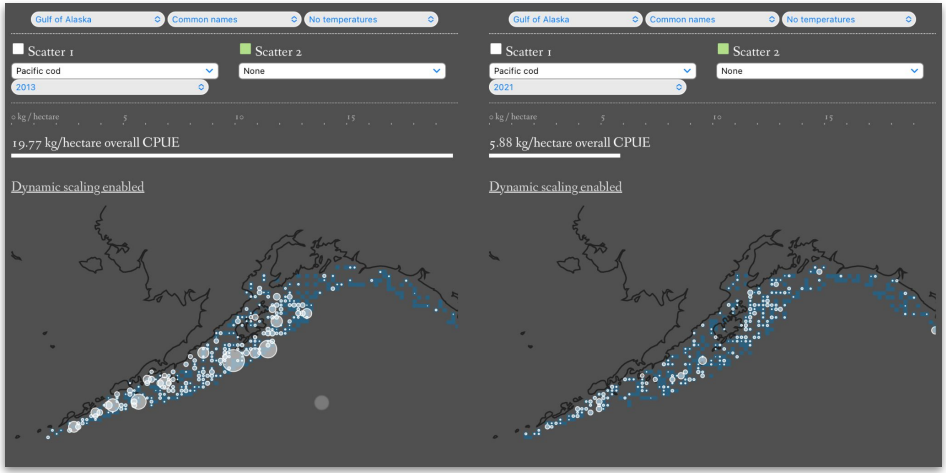
The above data dashboard, reimagined as a Choose Your Own Adventure (left) or Interactive Fiction (right) in the vein of Zork.

By viewing a dashboard as a thing having **space** and **artifacts**, you can think about how to optimize players **moving** through a complex world **collecting** insights. You can map how your users move through the dashboard to better design how they might. You can

Levels: Modulate what is visible to the user at any given moment in time, offer hints towards other areas.

https://illinois-soil-health-tool.org/

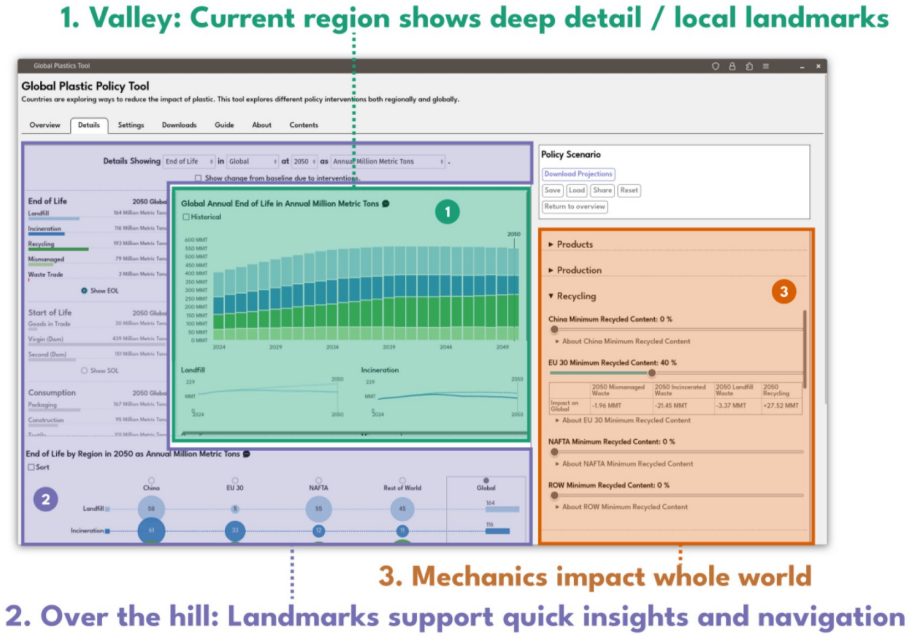
Architecture 2: Hayashida Design



To support learning this UI, an optional introduction sequence tutorializes a "real" analysis via Hayashida design (Brown, 2015; Nutt & Hayashida, 2012):

- **Introduction**: The tool shows information about Pacific cod with pre-filled controls used to achieve that analysis gradually fading in, asking the user for minor modifications.
- **Development**: Using the mechanics introduced moments prior, the tool invites the user to change the analysis to compare different regions.
- **Twist**: Enabling overlays on the same display, the user leverages mechanics they just exercised in a now more complex interface.
- **Conclusion**: The visualization invites the user to demonstrate skills acquired in a new problem.

Architecture 3: Triangle Design



Valleys and hills: Modulate what is visible to the user at any given moment in time, offer hints towards other areas.

https://global-plastics-tool.org

http://www.noceilings.org

Today

- Example of level design.
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- **Revisiting the AFSC GAP visualization.**
- Mario Level 1-1

Today

- Example of level design.
- Three architectures applied to data visualization from games.
- Revisiting the AFSC GAP visualization.
- **Mario Level 1-1**

Mario World 1-1

Citations

- G. Nicoli, "Spiritfarer: la morte felice," Ludica, 2020. Available: https://www.ludicamag.com/spiritfarer-la-morte-felice/
- M. Brown, "Super Mario 3D World's 4 Step Level Design," Game Maker's Toolkit, 2015. Available: https://www.youtube.com/watch?v=dBmIkEvEBtA
- A. Pottinger and G. Zarpellon, "Pyafscgap.org: Open source multi-modal Python-based tools for NOAA AFSC RACE GAP," JOSS, 2023. doi: 10.21105/joss.05593.
- D. Emmons and J. Portnow, "Design Club - Super Mario Bros: Level 1-1," Extra Credits, 2014. Available: https://www.youtube.com/watch?v=ZH2wGpEZVgE
- "Illinois Soil Health," University of California, 2023. Available: https://illinois-soil-health-tool.org/
- E. Meeks, "Designing a Data Visualization Dashboard Like It was a Game," Nightingale, 2018. Available: https://medium.com/nightingale/designing-a-data-visualization-dashboard-like-it-was-a-game-b347858c1bce
- A. Pottinger, N. Biyani, R. Geyer, D. J. McCauley, M. de Bruyn, M. R. Morse, N. Nathan, K. Koy, and C. Martinez, "Combining Game Design and Data Visualization to Inform Plastics Policy: Fostering Collaboration between Science, Decision-Makers, and Artificial Intelligence," Arxiv, 2023. Available: https://arxiv.org/abs/2312.11359.
- Fathom Information Design, "No Ceilings," The Clinton Foundation, 2015. Available: http://www.noceilings.org/


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