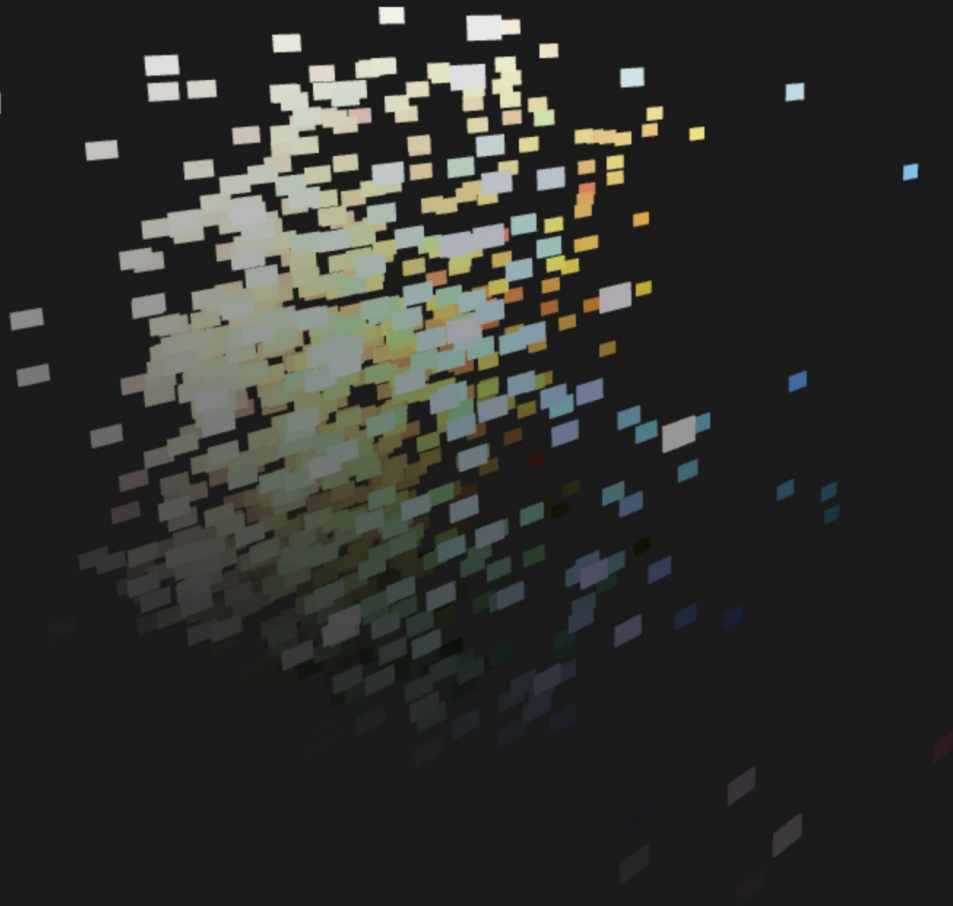


VISUALIZING VAN GOGH

Maryland Institute College of Art
MPS Data Analytics and Visualization
Capstone Project Presentation
Shreya Patel





Van Gogh in Color

An Interactive Journey Through Emotion and Art

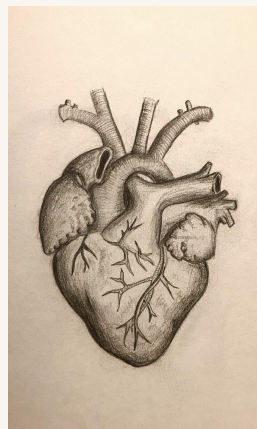
Shreya Patel
MICA DAV '25

Tell a story *about* color.



Data scientist by day, artist by night.

This project reflects my fascination with the intersection of quantitative analysis and artistic expression.





Arles



Saint-Remy



Early Days



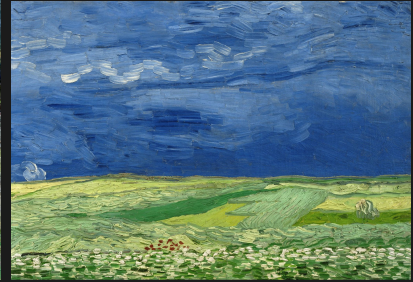
Paris



Arles



Saint-Remy



Auvers

"I am always in need of a color that would express what I am feeling..

I have never been able to paint with a color that did not represent something that is inside me, a state of mind, a mood."

- Van Gogh, 1889

Conduct a data-driven analysis of Vincent van Gogh's use of color in his art through each of his artistic phases, and relate that back to his life events. Present this information in an interactive and engaging format.

Van Gogh is best known for his bold use of color and that changes throughout his career. This project explores his relationship with color in an engaging, data-driven format, as this does not currently exist. This project seeks to fill these gaps.

- Artist
- Data scientist
- Background in art history and knowledgeable about Van Gogh's life
- Very interested in how color relates to emotion

HOUSE COLOR PALETTE 2022				ABC ST	
<p>SWISS COFFEE - 20% LIGHTER - BM</p>  <p>#F1F0E7</p>	<p>SWISS COFFEE - BM</p>  <p>#EEEECE</p>	<p>ROSEDALE - BM</p>  <p>#BF9789</p>	<p>DRENCHED SIENNA - BM</p>  <p>#A67768</p>	<p>SOUTHWEST POTTERY - BM</p>  <p>#975F57</p>	
<p>FOX HEDGE TAN - BM</p>  <p>#C4A289</p>	<p>HOT CHOCOLATE/ OREGON TRAIL - BM</p>  <p>#86604F</p>	<p>BARISTA - BM</p>  <p>#5B423A</p>	<p>MISSISSIPPI MUD - BM</p>  <p>#52433E</p>		
<p>IVY LEAGUE GREEN - BM</p>  <p>#988B65</p>	<p>CLEVELAND - BM</p>  <p>#8E8163</p>	<p>MOUNTAIN MOSS - BM</p>  <p>#757055</p>	<p>MEDITERRANEAN OLIVE - BM</p>  <p>#5E5A42</p>	<p>GREENBLACK (SW)</p>  <p>#373A3A</p>	
<p>MAIN NEUTRAL - BACKGROUND SWISS COFFEE - BM</p>				<p>BENJAMIN MOORE - BM SHERWIN WILLIAMS - SW</p>	

The base for this project was derived through web scraping

- List of 856 oil paintings and associated data
- Images of 856 oil paintings

Supplemental information

- Vincent van Gogh's letter archives online
 - 903 letters total
 - Easily searchable
- Life events

K-Means Clustering

- Unsupervised machine learning algorithm
- Divides objects into groups based on specific attributes
- Number of clusters can be defined

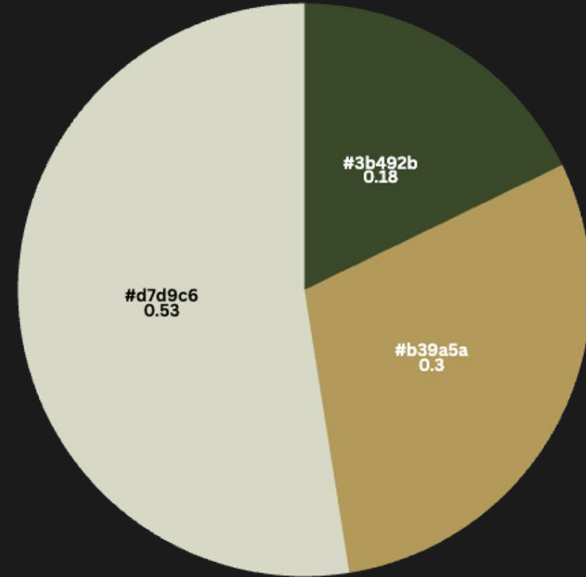
K-Means Clustering Application - Paintings

- The number of pixels in the JPG image of each painting
- Grouped the pixels into defined number of clusters based on RGB **color**
- The centroid, or **mean**, of each cluster is taken as a dominant color
- 3 groups , 3 dominant colors of each paintings
- The percent of pixels in the painting image that falls into each cluster

K-Means Clustering Application - Paintings



Wheatfield with Cypresses, 1889



K-Means Clustering Application - Color Palette

- Applied another time to the dominant colors of the paintings in each of Van Gogh's artistic periods
- Derived a color palette for the artistic period based off this clustering



Scraping Data

- Python via Jupyter Notebooks

Machine Learning

- Python
 - Scikit-learn

Calculations and Formatting Data

- Python and Excel

Data Exploration

- Tableau
- Python

Ideation

- On paper

Visualizations

- JavaScript
 - D3 via Observable
 - Three.js
- Illustrator

Platform

- ~~Svelte/Scrollama/D3~~
- ReadyMag

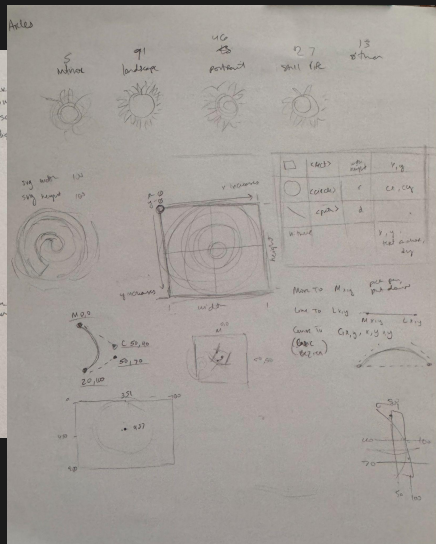
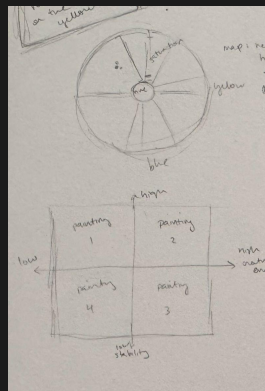
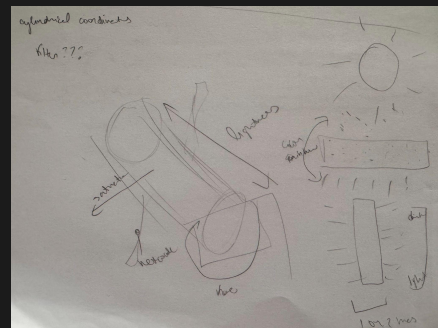
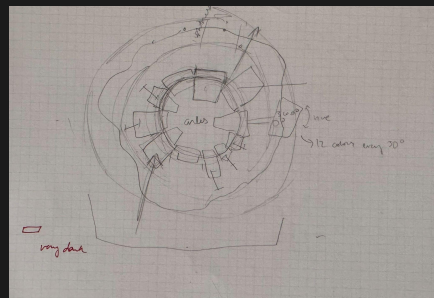
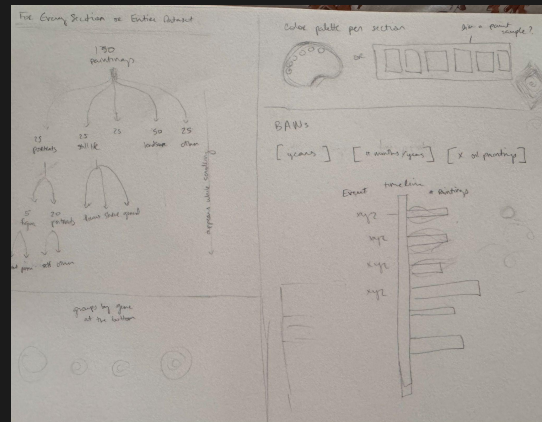
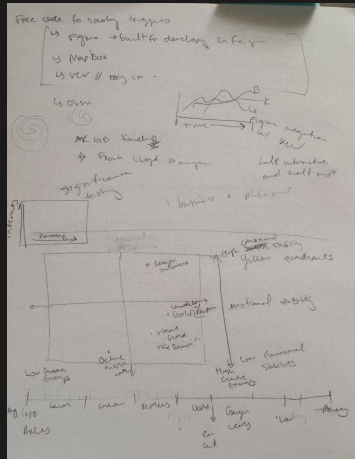
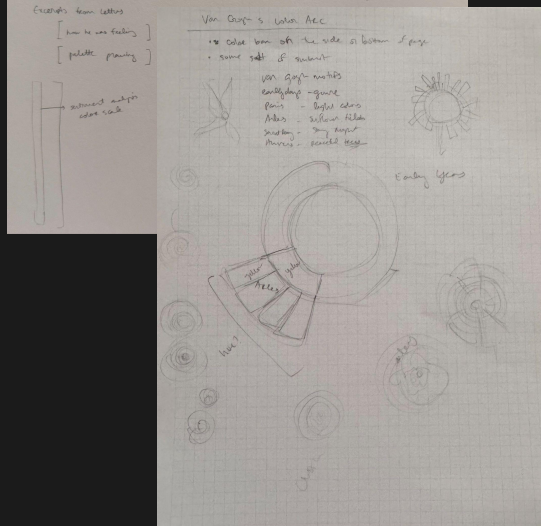
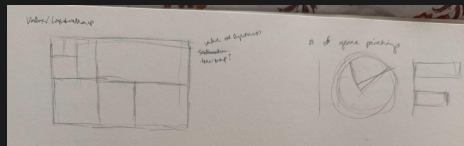
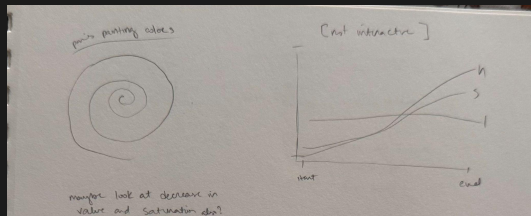
17

Jupyter Notebooks - Python

17

Observable Notebooks - D3

18/ Iterating



Fields of data.
Endless exploration.
A multitude of variables.

1 key takeaway for each artistic period.

Early Years	—————	despair	—————	dark colors
-------------	-------	---------	-------	-------------

Paris	—————	inspiration	—————	pastels
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Arles	—————	hope, mania	—————	yellow
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Saint-Remy	—————	inner turmoil	—————	contrast
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Auvers	—————	desperation	—————	green
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Simple or experimental?

"The studies I make here are black on black, like a coal miner buried underground."

- Letter to Theo, Feb 1886

"My palette is becoming brighter — I have thrown off the dull earth colors for a richer world of blue, crimson, and gold."

- Letter to Theo, March 1887

Let Van Gogh speak for himself.

"I want to paint the sun, a sun that can burn your eyes and yet is born from the tender yellow of a buttercup."

- Letter to Theo, September 1888

"When I look at the starry sky, I dream of a painting, and then the colors are more intense than in reality."

- Letter to Theo, June 1889

"I am seeking calmness in color, a peace that I no longer find in myself."

- Letter to Theo, June 1890

This project can be appreciated by many people, but the core audience is very specific.

Demographic:

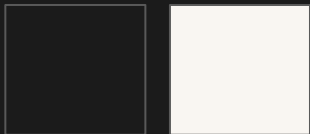
- Age: 25-40
- Career: Not full-time artist

Characteristics:

- art enthusiast
- member of the local art museum
- do the New York Times crossword
- enjoys a good “whodunit” book
- has a favorite Substack
- consumes slow media
- owns a record player

Immersive scrollytelling piece with
interactive visualizations.

Constantia
Gill Sans



Van Gogh in Color

An Interactive Journey Through Emotion and Art

Scroll to continue ↓





View of Paris, 1886

Color is the data.

Tooltips

- Added tooltip in nearly every single visualization
- Making it easier for the reader to contextualize the information and make it more accessible
- Tooltip contain the HSL data if not already included

Period: Saint-Rémy-de-Provence

Hue Range: 60°–75°

Count: 25 (17.5%)

Avg Saturation: 18.6%

Avg Lightness: 43.3%

Work Title: Garden behind a house

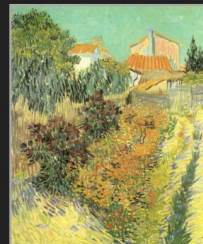
ID: F578

Dominant Color Number: 3

Hue: 107°

Saturation: 32%

Lightness: 68%



Vincent van Gogh's use of color was highly impacted by his emotions – and his aspirational emotions. By the end of his career he was using colors to attempt to evoke feelings of peace within himself.

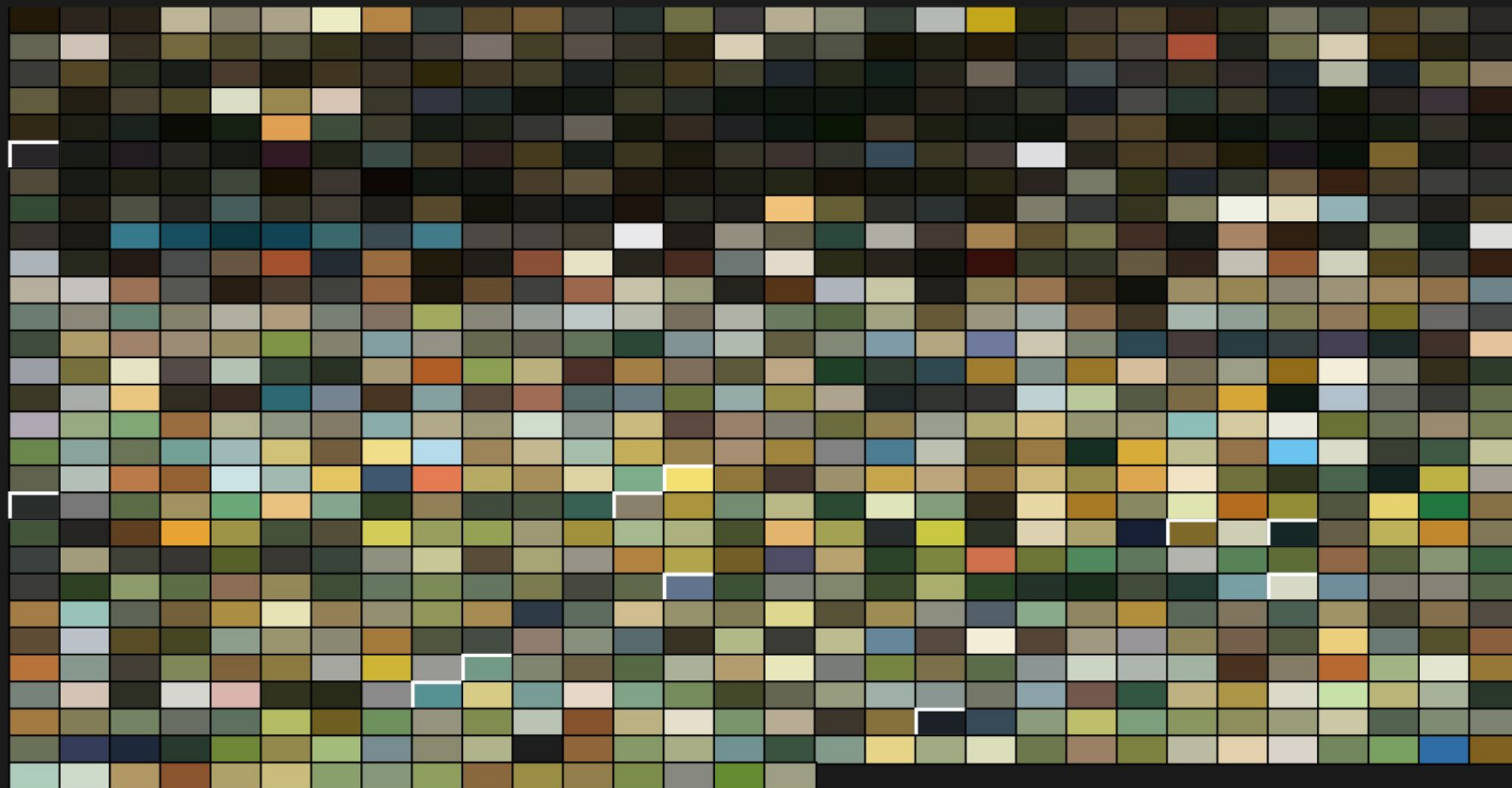
Next Steps

- Make a few more edits...
- Make the 3d visualization from scratch
- More with this data! Was very laborious to obtain.
- Python/R Package
 - Van Gogh Color Palette

Thank you!

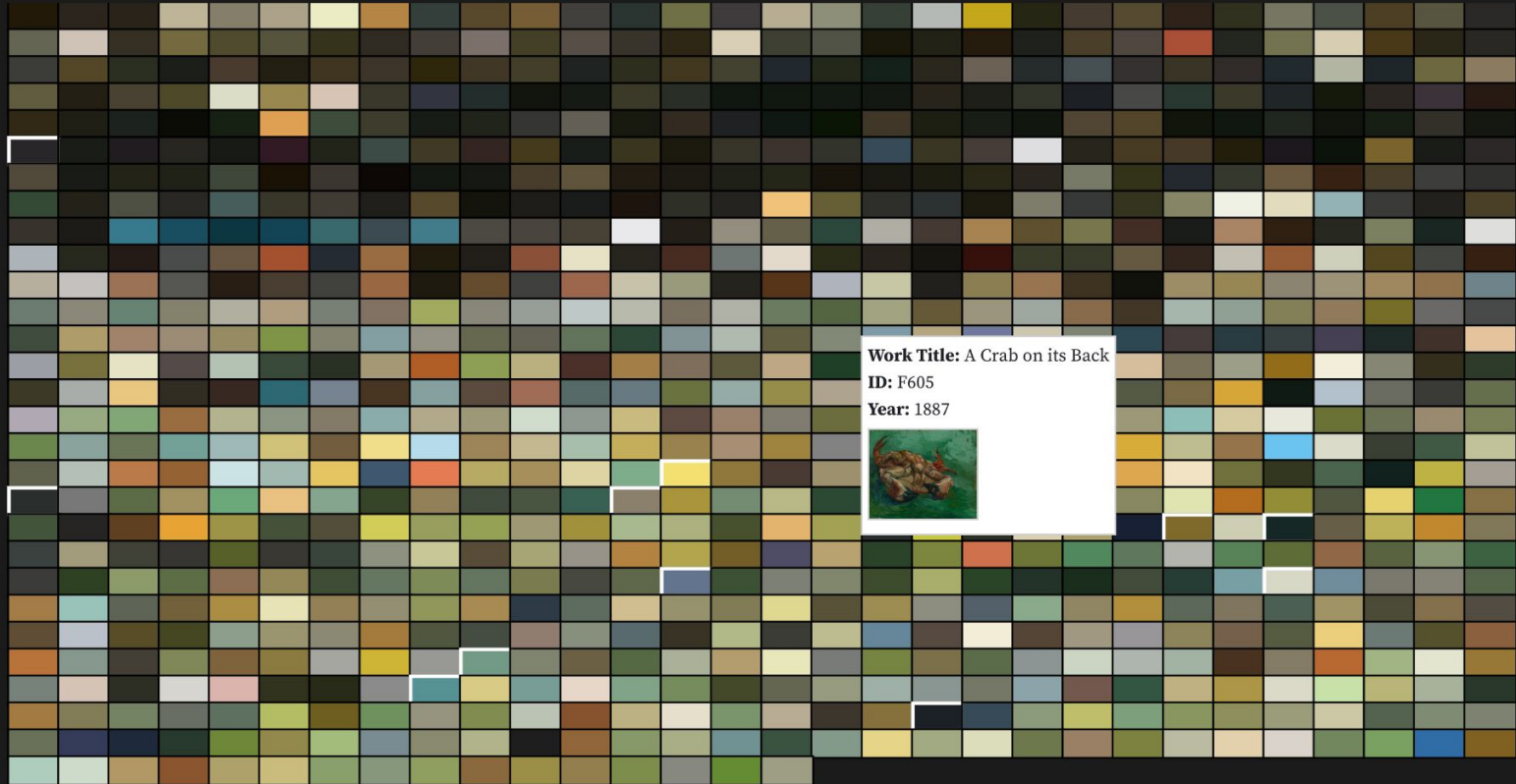
The Colors of Vincent van Gogh

The Most Dominant Color in Each Oil Painting

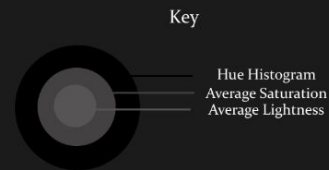


The Colors of Vincent van Gogh

The Most Dominant Color in Each Oil Painting



Quantifying Color in Van Gogh's Artistic Periods



Early Days



Paris



Arles

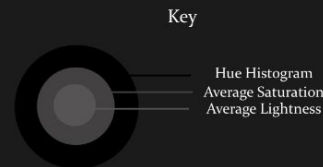


Saint-Rémy-de-Provence



Auvers-sur-Oise

Quantifying Color in Van Gogh's Artistic Periods

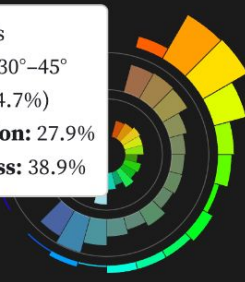


Early Days



Paris

Period: Paris
Hue Range: 30°–45°
Count: 53 (24.7%)
Avg Saturation: 27.9%
Avg Lightness: 38.9%



Arles



Saint-Rémy-de-Provence

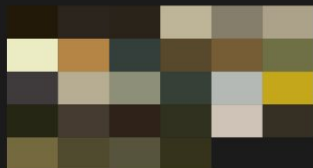


Auvers-sur-Oise

Dominant Color in Van Gogh's Early Years of Oil Painting



Hague, The



Nuenen



Drenthe



Antwerp



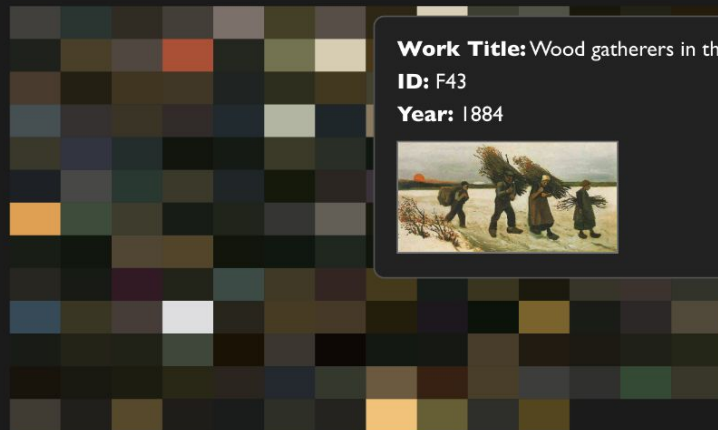
Dominant Color in Van Gogh's Early Years of Oil Painting



Hague, The



Nuenen



Work Title: Wood gatherers in the snow

ID: F43

Year: 1884



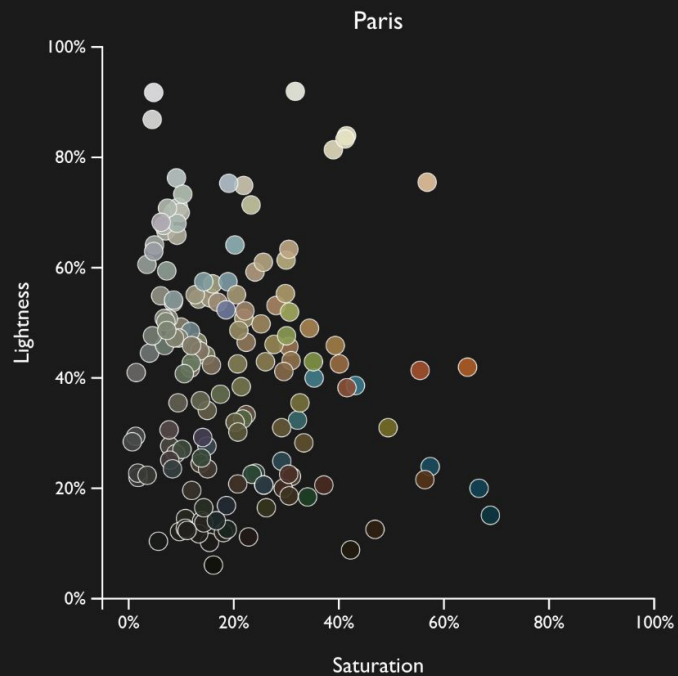
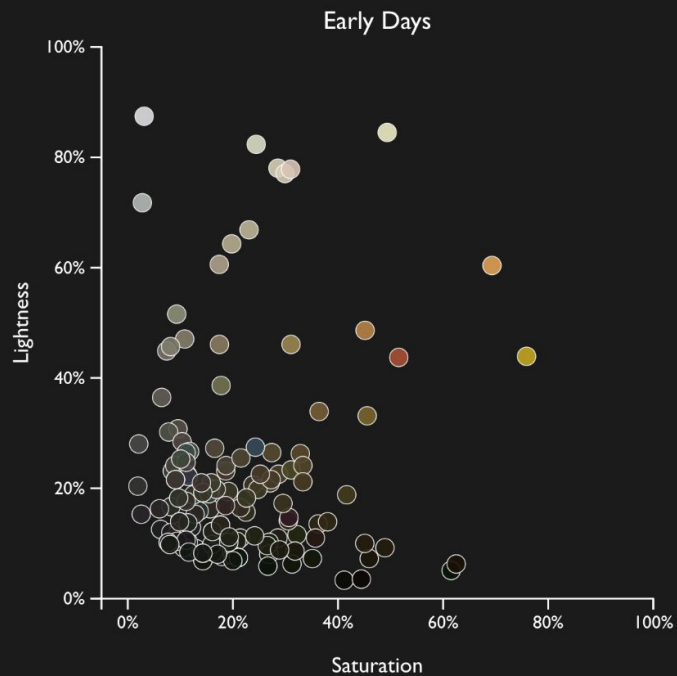
Drenthe



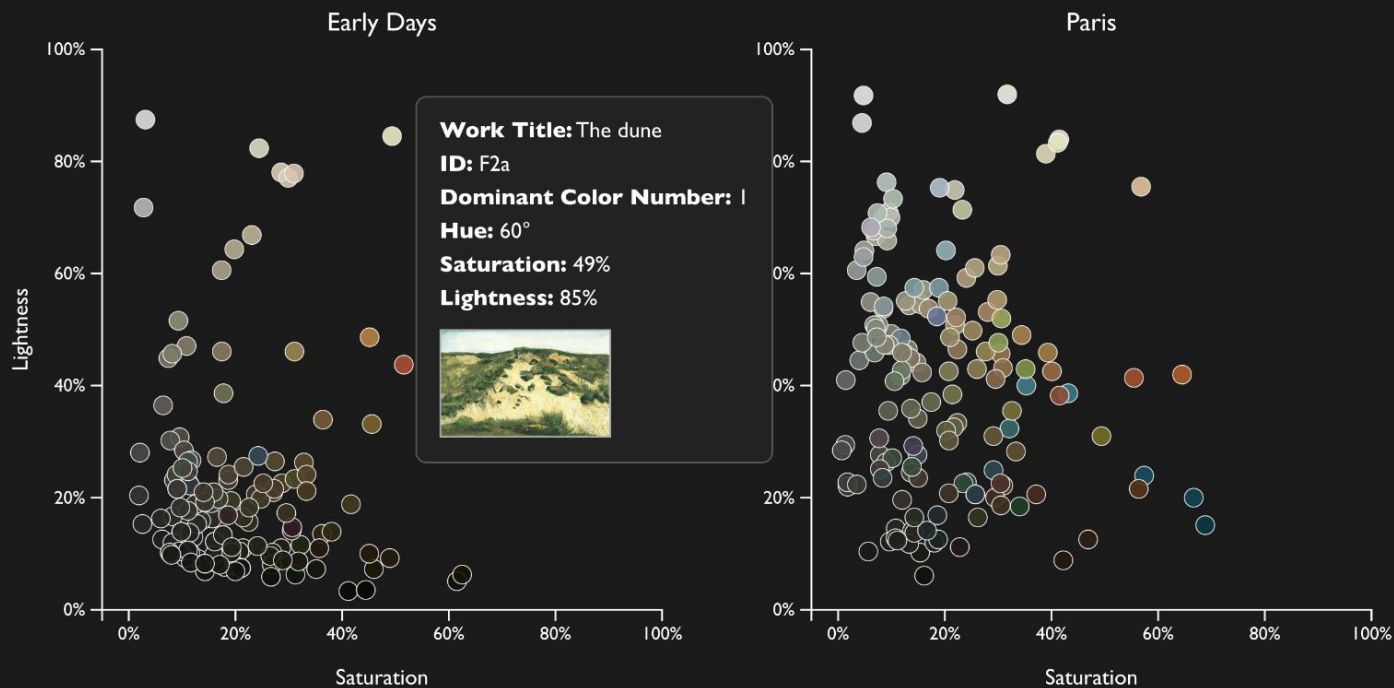
Antwerp



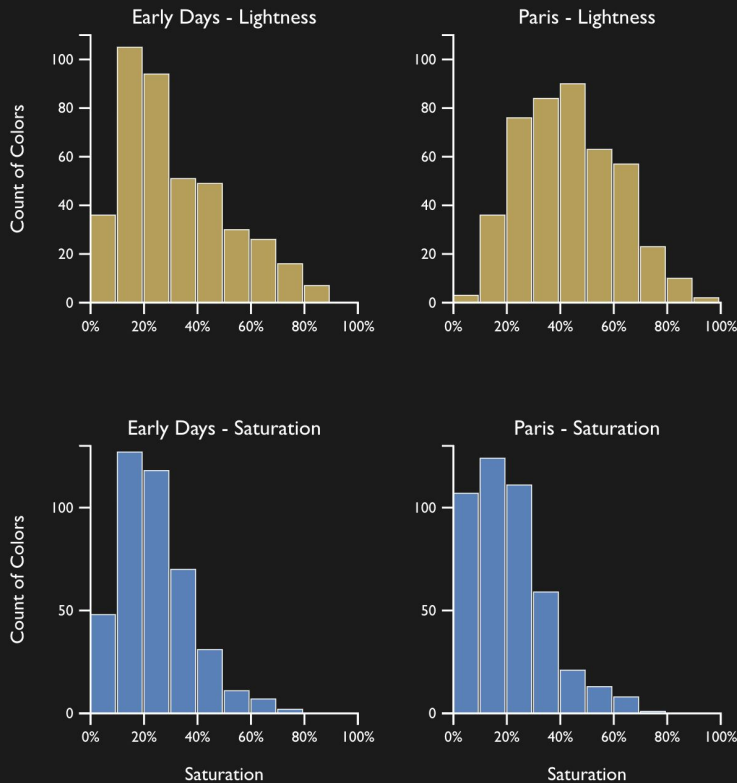
Visualizing Van Gogh's Shift in Color: Early Work to Paris



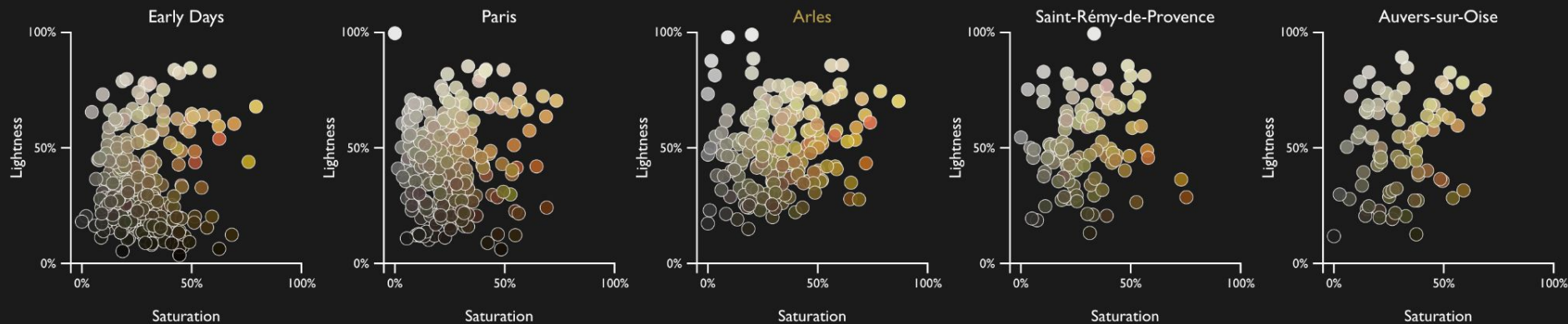
Visualizing Van Gogh's Shift in Color: Early Work to Paris



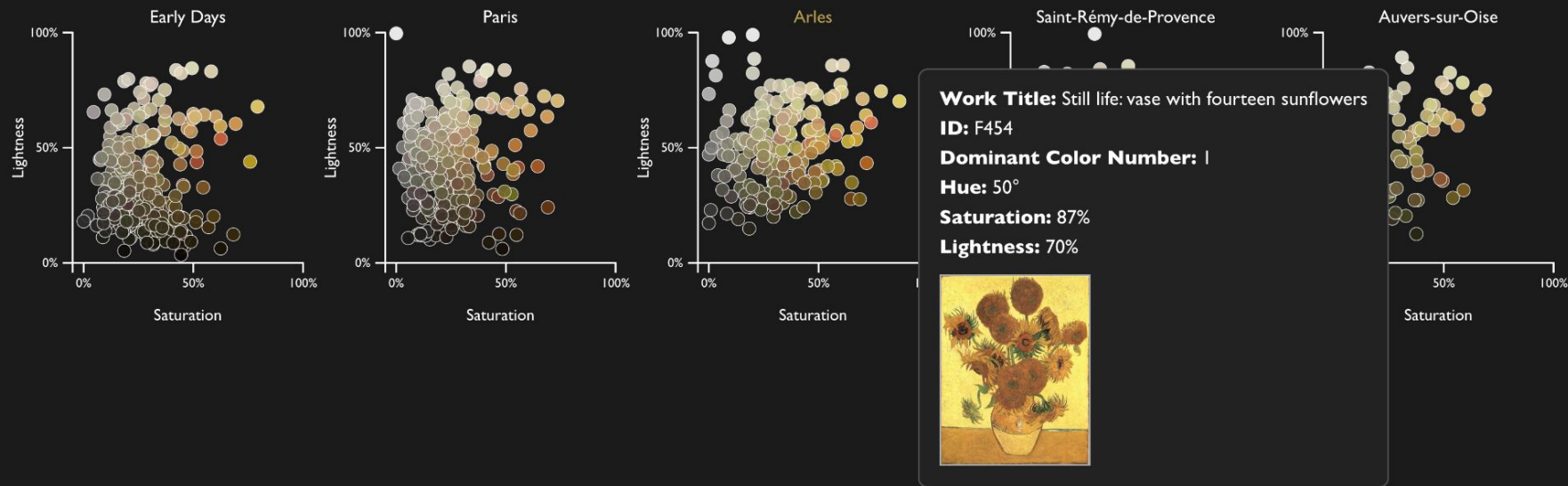
Distribution of Lightness and Saturation:
Van Gogh's Early Work to Paris



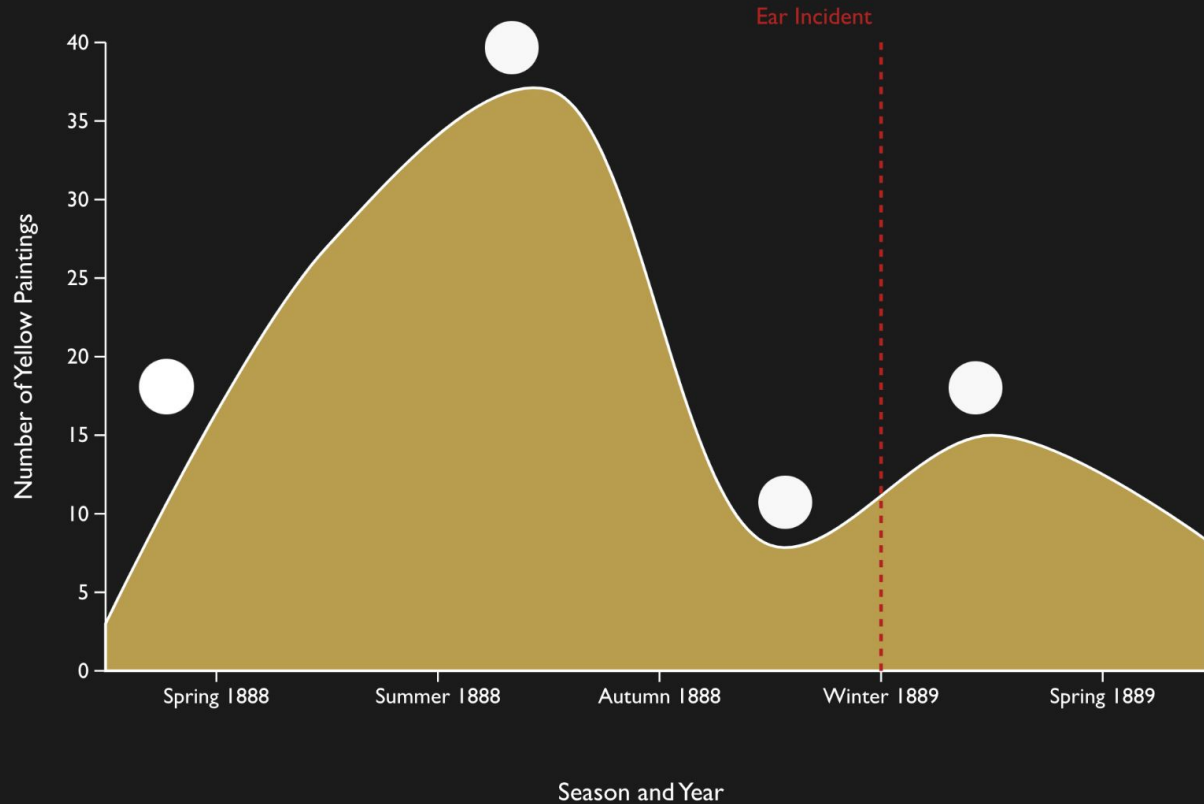
Van Gogh's Yellow Hues by Period

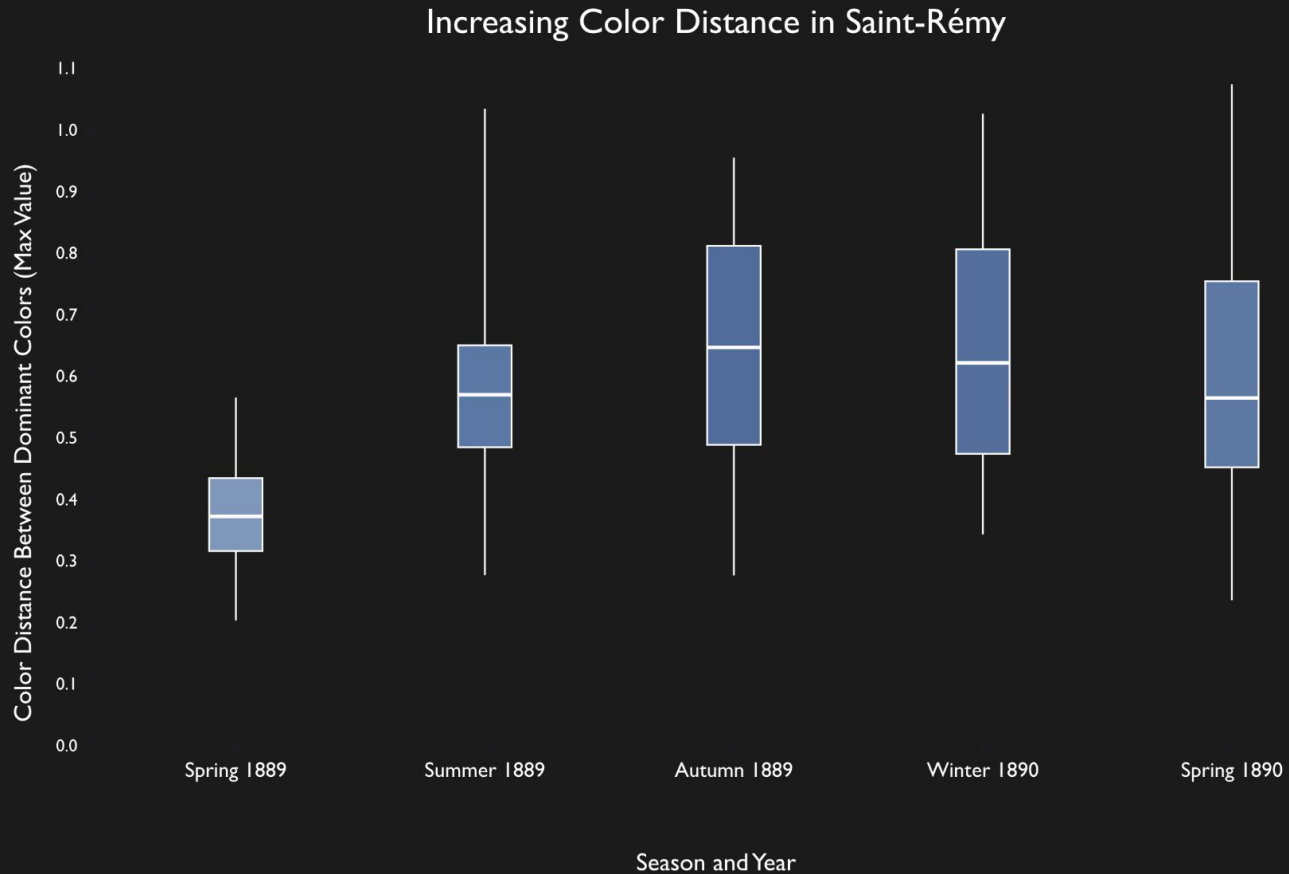


Van Gogh's Yellow Hues by Period



The Rise and Fall of Van Gogh's Yellows in Arles





Master Studies by Van Gogh (Saint-Remy)

Millet



Delacroix



Gauguin



Rembrandt



Virginie Demont-Breton



Daumier



Gustave Doré

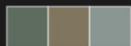


Master Studies by Van Gogh (Saint-Remy)

Millet



Delacroix



Gauguin



Rembrandt



Virginie Demont-Breton



Daumier



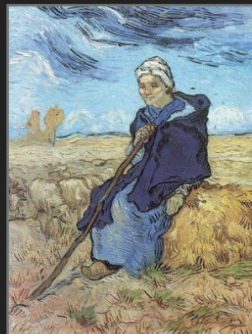
Gustave Doré



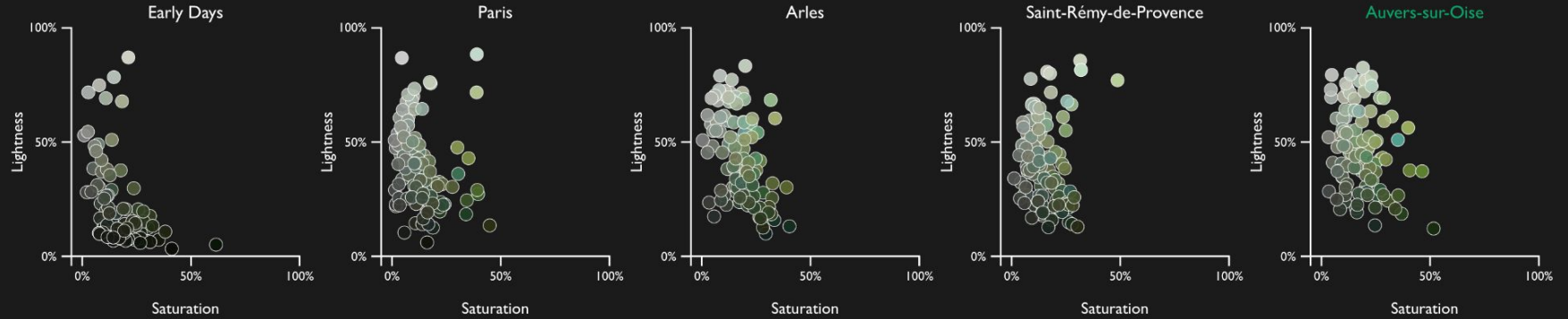
Work Title: The shepherdess [after Millet]

ID: F699

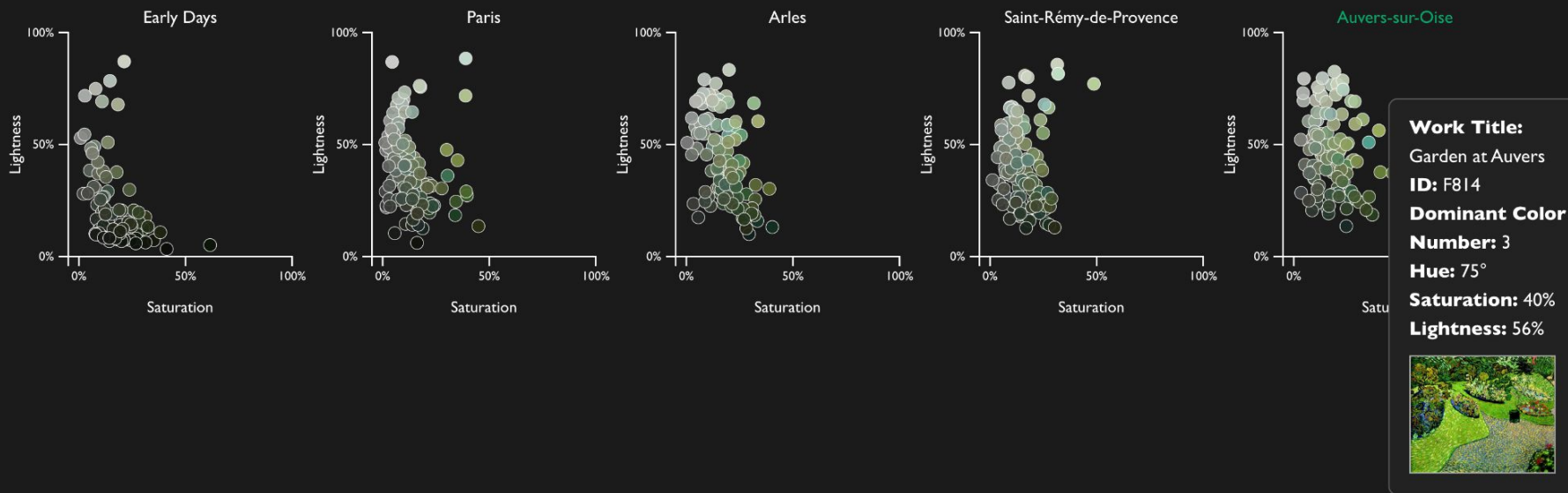
Year: 1889



Van Gogh's Green Hues by Period

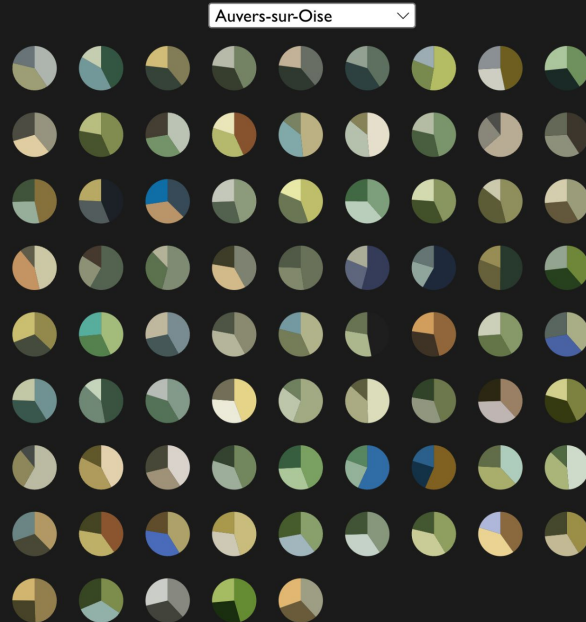


Van Gogh's Green Hues by Period



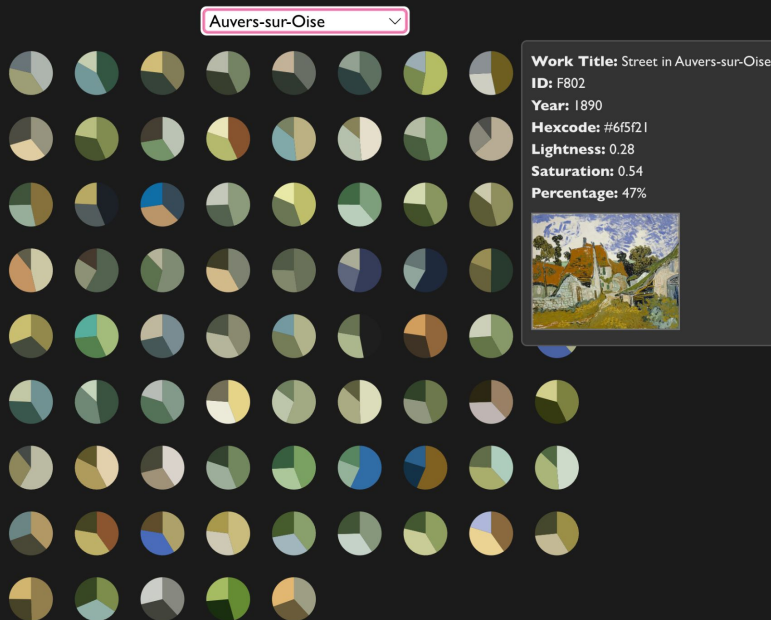
Explore the Dominant Colors in Van Gogh's Art

Each pie chart below represents an oil painting by Vincent van Gogh. The pie slices are each one of the dominant colors. Use the filter and the hover feature to explore each period of Van Gogh's oil paintings.



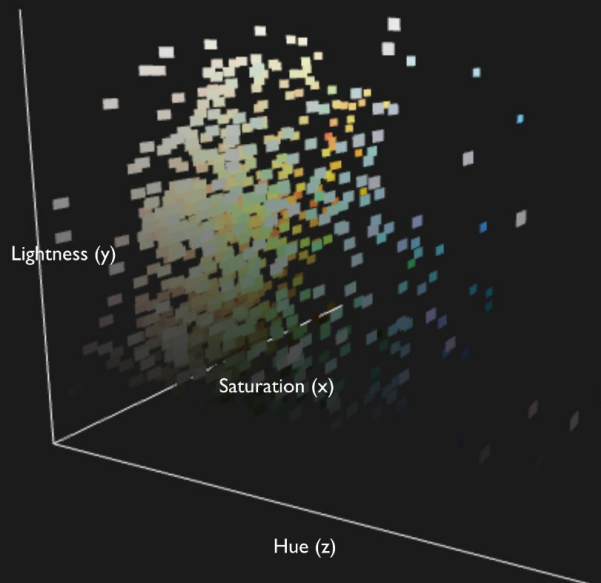
Explore the Dominant Colors in Van Gogh's Art

Each pie chart below represents an oil painting by Vincent van Gogh. The pie slices are each one of the dominant colors. Use the filter and the hover feature to explore each period of Van Gogh's oil paintings.



Van Gogh in 3D

The most dominant color in each of Vincent Van Gogh's oil paintings, graphed.
Interact to explore. See full project [here](#).



Toggle Axes

