

EchoScope™ R Shiny App User Guide

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Lucas Luo

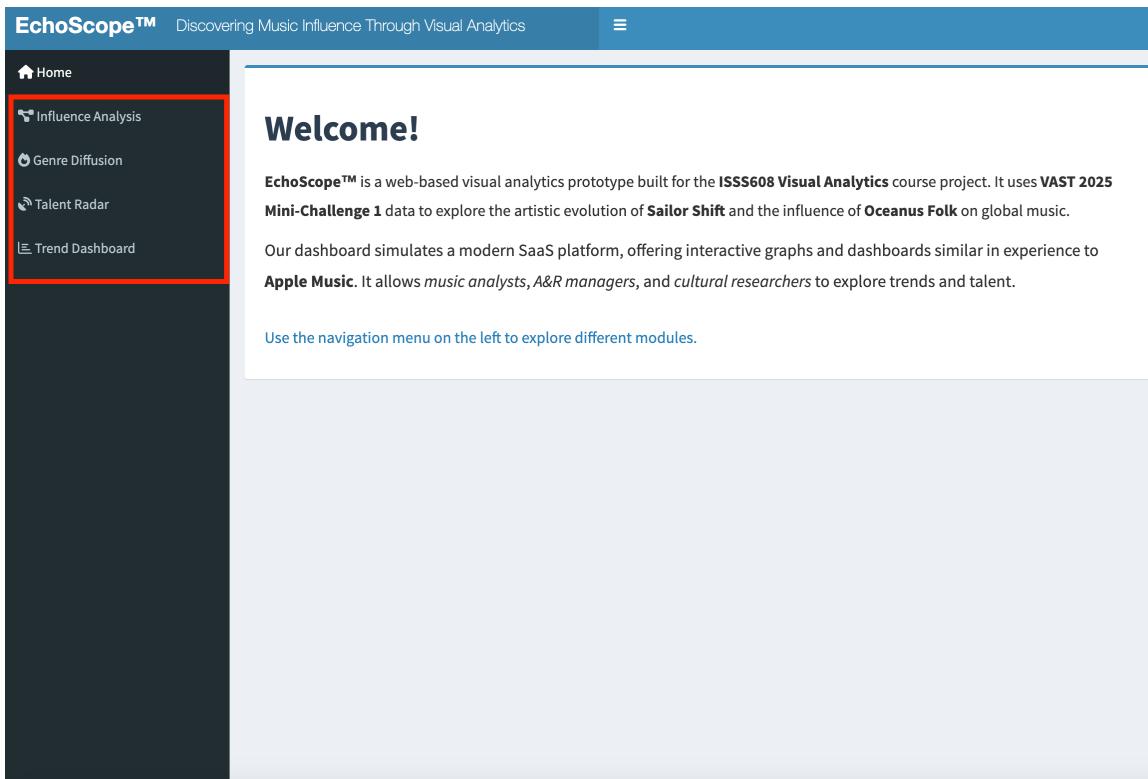
Irene Yang

Xuerong Zhang

This guide walks users through the EchoScope™ platform, an R Shiny application designed to analyze music influence using visual analytics. The app consists of four core modules:

1. Influence Graph Studio
2. Genre Diffusion Tracker
3. Talent Radar
4. Trend Dashboard

Each module helps uncover relationships between artists, genres, and trends, offering valuable insights to talent scouts, researchers, and music analysts.



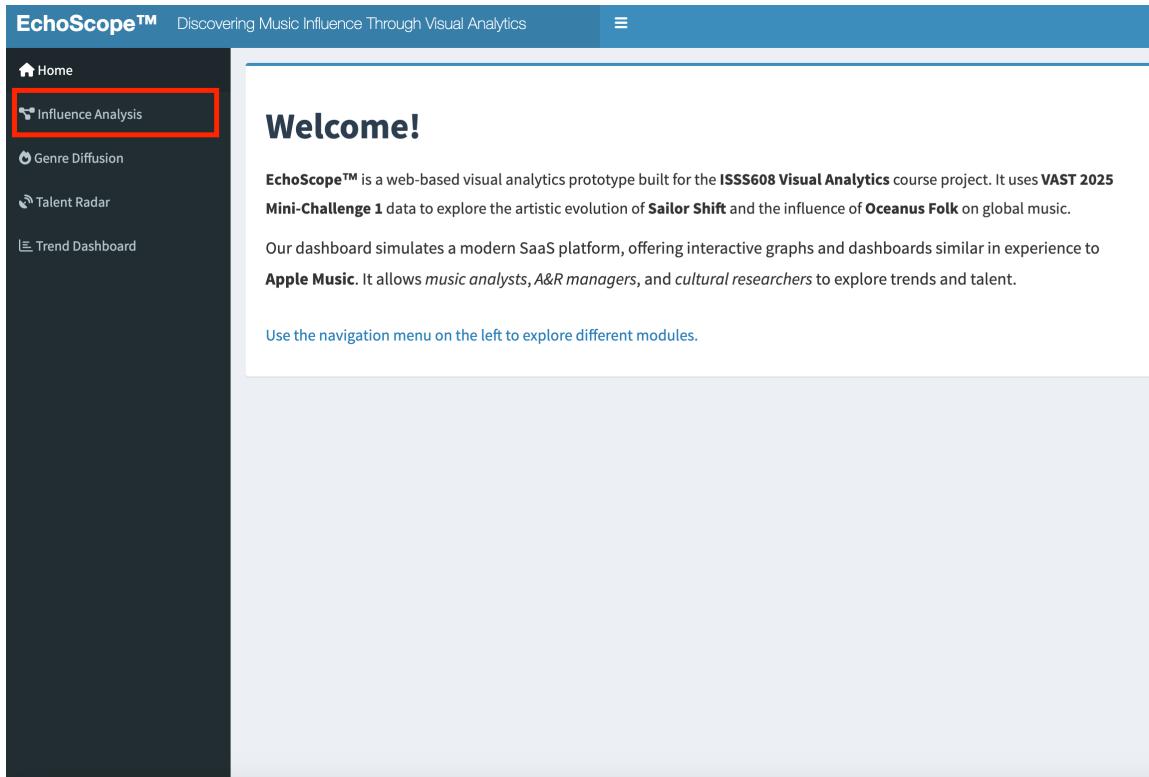
1. Influence Graph Studio

Module Purpose

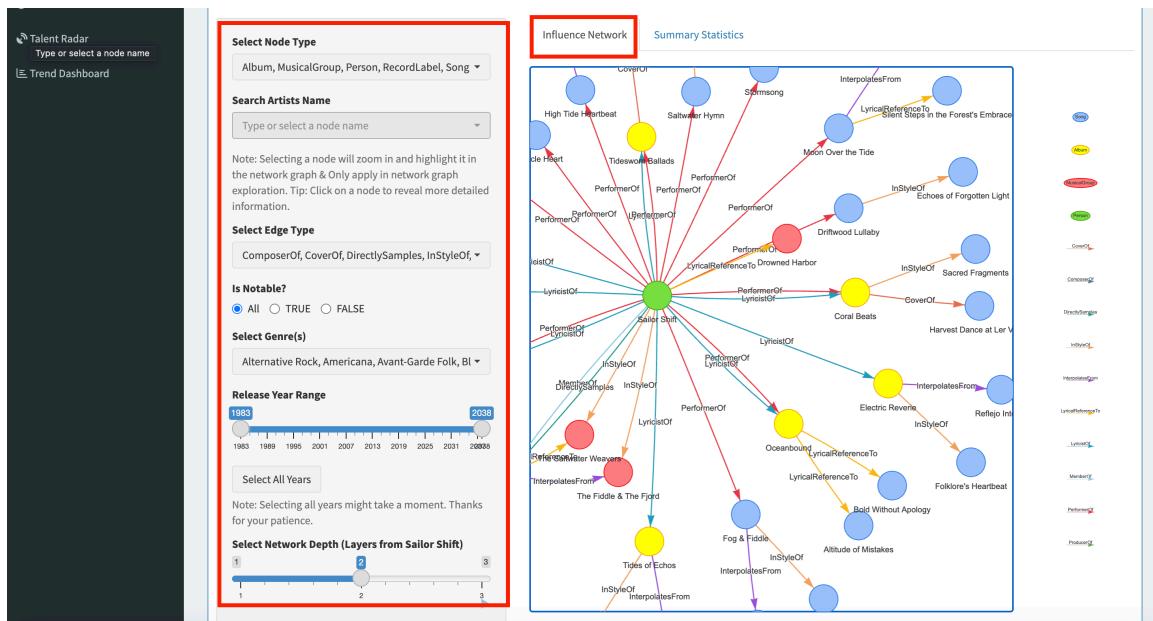
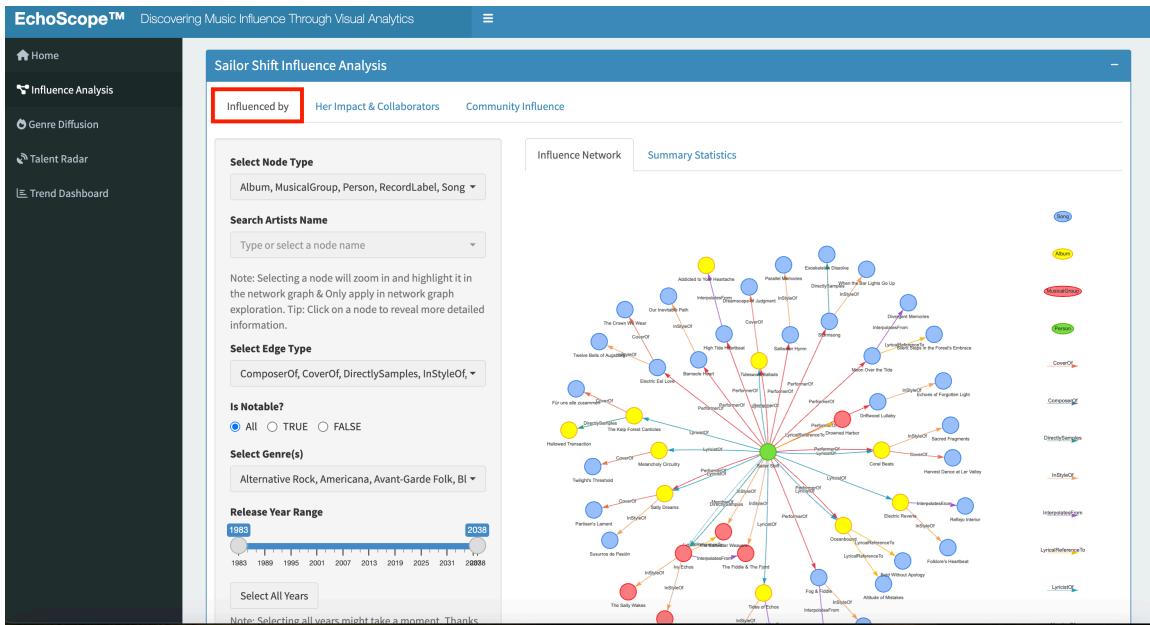
This module allows users to explore the artistic ecosystem surrounding Sailor Shift by analyzing 1- to 3-hop influence networks. It's built for understanding how influence travels from and to an artist, and identifying her most connected collaborators and influencers.

1.1 Step-by-Step Instructions

- 1, Click on "**Influence Analysis**" in the sidebar navigation menu to enter the module.



2. Click the "**Influenced by**" tab to reverse the direction of the influence graph, showing who influenced Sailor Shift instead of who she influenced. Use the **left-side control panel** to define how the influence network is built and displayed:
 - **Select Node Type:** Choose types like Person, Song, Album, etc.
 - **Select Edge Type:** Choose relationship types such as ComposerOf, InStyleOf, etc.
 - **Set Genre(s) and Release Year Range** to narrow the dataset.



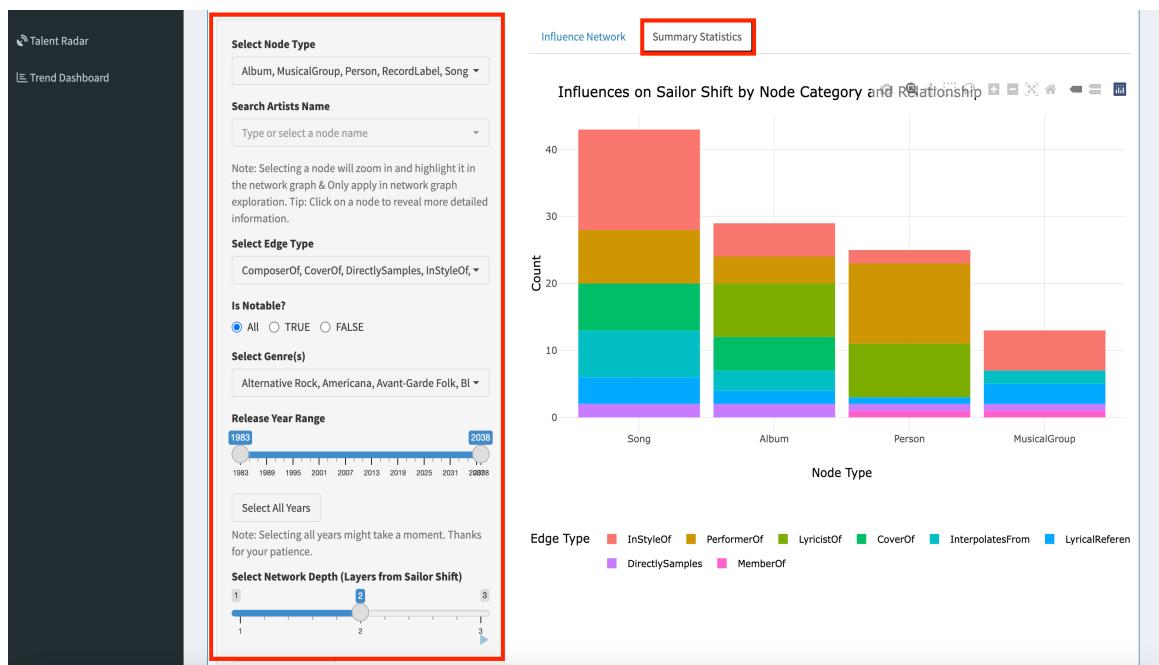
- **Adjust Network Depth** to choose 1-hop to 3-hop from Sailor Shift.

Show 10 entries Search:

From	From Type	Relationship	To	To Type	Genre	Notable
Twelve Bells of Augsburg	Song	InterpolatesFrom	Harvest Dance at Ler Valley	Song	Psychedelic Rock	true
Melancholy Circuitry	Album	CoverOf	Twilight's Threshold	Song	Synthwave	true
Electric Reverie	Album	InterpolatesFrom	Reflejo Interior	Song	Americana	true
Electric Reverie	Album	InStyleOf	Folklore's Heartbeat	Song	Blues Rock	true
The Fiddle & The Fjord	MusicalGroup	PerformerOf	Echoes of the Old Way	Album	Celtic Folk	true
The Fiddle & The Fjord	MusicalGroup	PerformerOf	Runes & Reverie	Album	Celtic Folk	true
The Fiddle & The Fjord	MusicalGroup	PerformerOf	Blood & Heather	Album	Celtic Folk	true
The Fiddle & The Fjord	MusicalGroup	PerformerOf	Mist Over Skye	Song	Celtic Folk	false
The Fiddle & The Fjord	MusicalGroup	PerformerOf	Where the Ravens Roam	Song	Celtic Folk	false
The Fiddle & The Fjord	MusicalGroup	PerformerOf	Storm & Stone	Song	Celtic Folk	false

Showing 1 to 10 of 128 entries Previous 1 2 3 4 5 ... 13 Next

3. Click the "Summary Statistics" tab on the top-right of the main panel. The bar chart will appear, showing the breakdown of influences categorized by **node type** and **relationship type**.



Show 10 entries Search:

From	From Type	Relationship	To	To Type	Genre	Notable
Twelve Bells of Augsburg	Song	InterpolatesFrom	Harvest Dance at Ler Valley	Song	Psychedelic Rock	true
Melancholy Circuitry	Album	CoverOf	Twilight's Threshold	Song	Synthwave	true
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Electric Reverie	Album	InStyleOf	Folklore's Heartbeat	Song	Blues Rock	true
The Fiddle & The Fjord	MusicalGroup	PerformerOf	Echoes of the Old Way	Album	Celtic Folk	true
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The Fiddle & The Fjord	MusicalGroup	PerformerOf	Storm & Stone	Song	Celtic Folk	false

Showing 1 to 10 of 128 entries Previous 1 2 3 4 5 ... 13 Next

4. Click the tab “Her Impact & Collaborators and ensure the sub-tab “Impact Network” is selected. To use the left-side Impact Analysis Controls to configure:

- Node and Edge Types
- Impact Direction (Outgoing)
- Network Depth
- Collaborator Filters (Type + Year Range)

Influence Analysis

Genre Diffusion

Talent Radar

Trend Dashboard

Influenced by Her Impact & Collaborators Community Influence

Impact Analysis Controls

Select Node Type: Album, MusicalGroup, Person, RecordLabel, Song

Select Edge Type: ComposerOf, CoverOf, DirectlySamples, InStyleOf

Impact Direction: Outgoing (Her Impact) Incoming (Influenced by)

Network Depth: 2

Collaboration Filters

Collaborator Type: PerformerOf, ComposerOf, LyricistOf, ProducerOf

Collaboration Year Range: 1983 - 2038

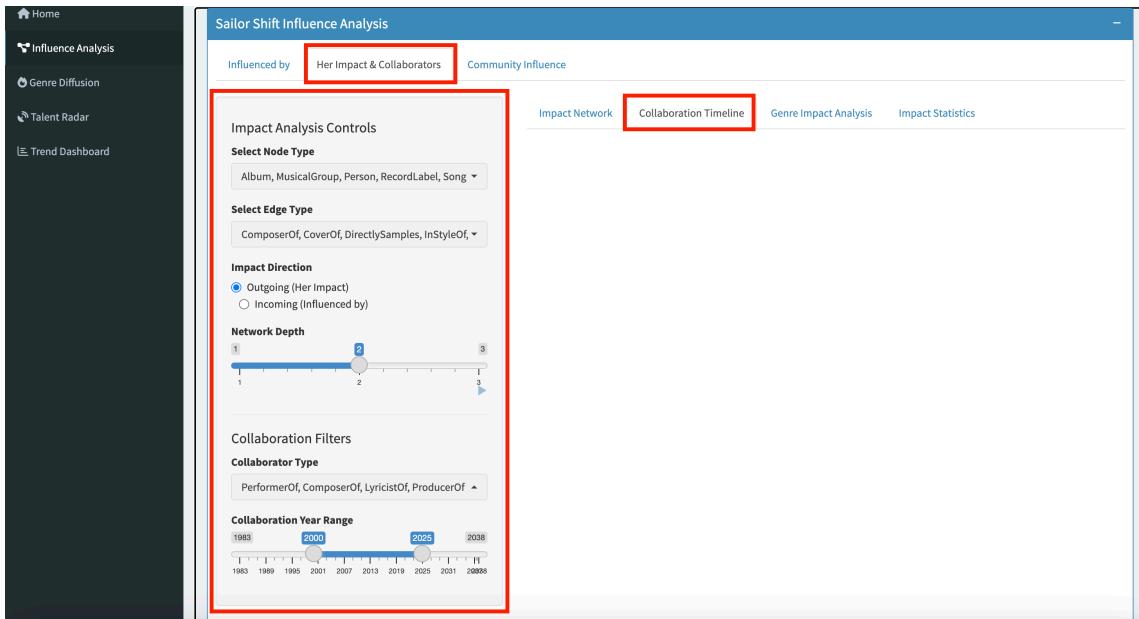
Impact Network **Community Influence** **Collaboration Timeline** **Genre Impact Analysis** **Impact Statistics**

Legend for edge types:

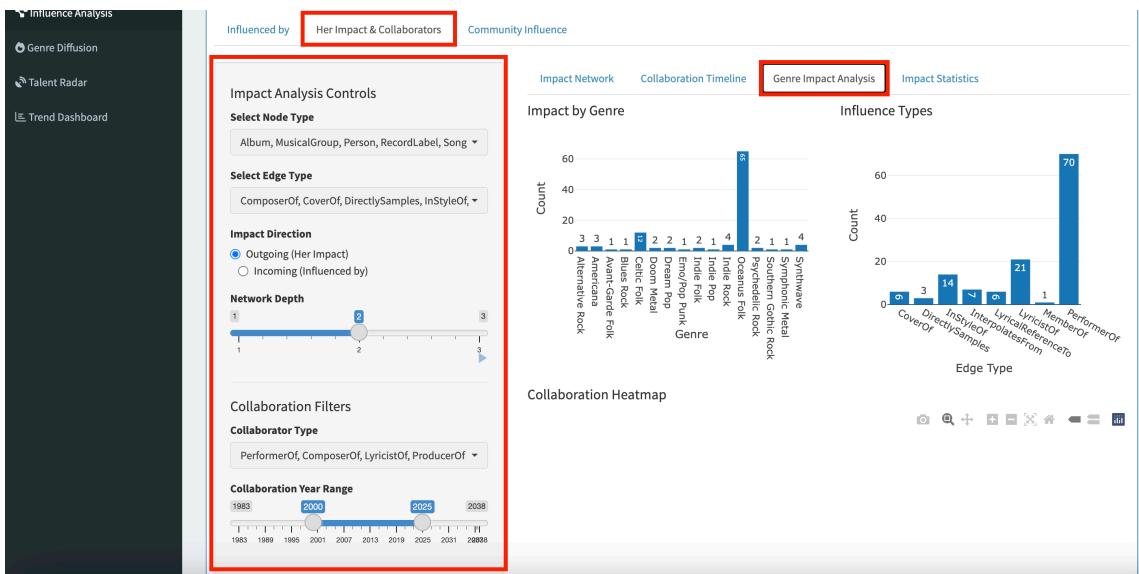
- ComposerOf
- CoverOf
- DirectlySamples
- InStyleOf
- InterpolatesFrom
- LyricalReferencesTo
- LyricistOf
- MusicianOf
- PerformerOf
- ProducerOf

Show 10 entries Search:

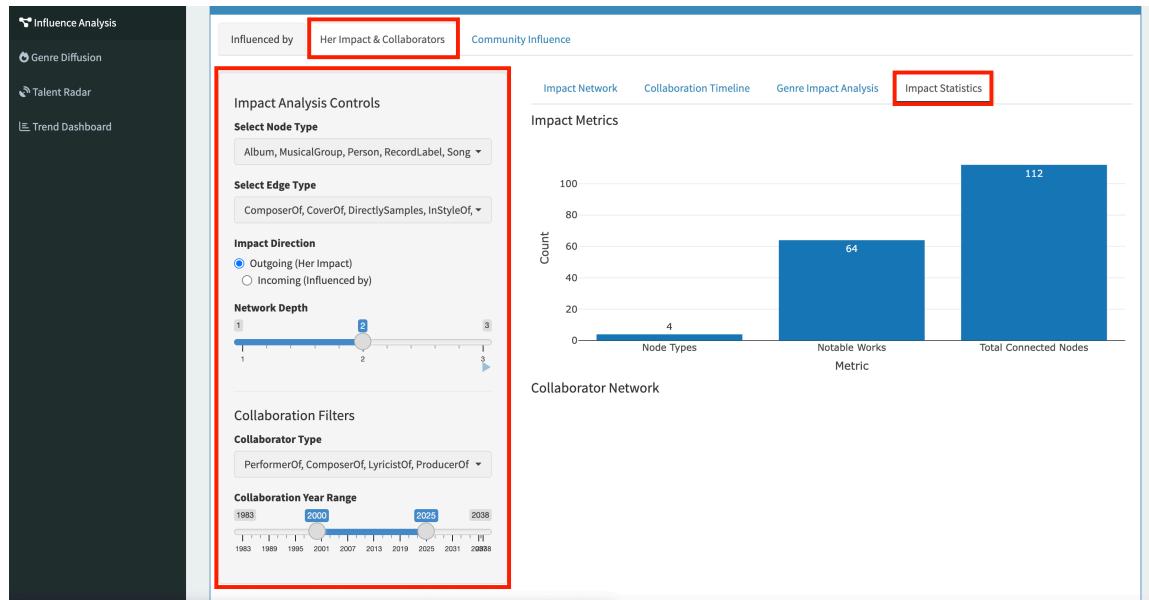
5. Under the same “**Her Impact & Collaborators**” tab, click “**Collaboration Timeline**” and keep filters on the left consistent if needed



6. Switch to the sub-tab “**Genre Impact Analysis**” under “**Her Impact & Collaborators**” and ensure left-side filters are configured as needed.

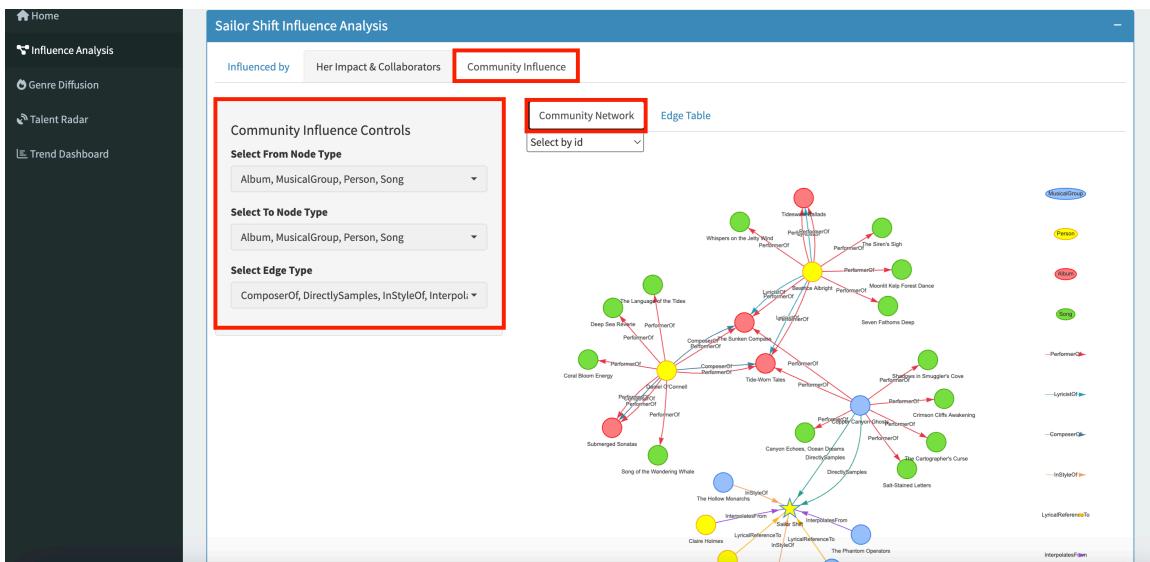


7. Switch to the sub-tab “**Impact Analysis**” under “**Her Impact & Collaborators**” and ensure left-side filters are configured as needed.

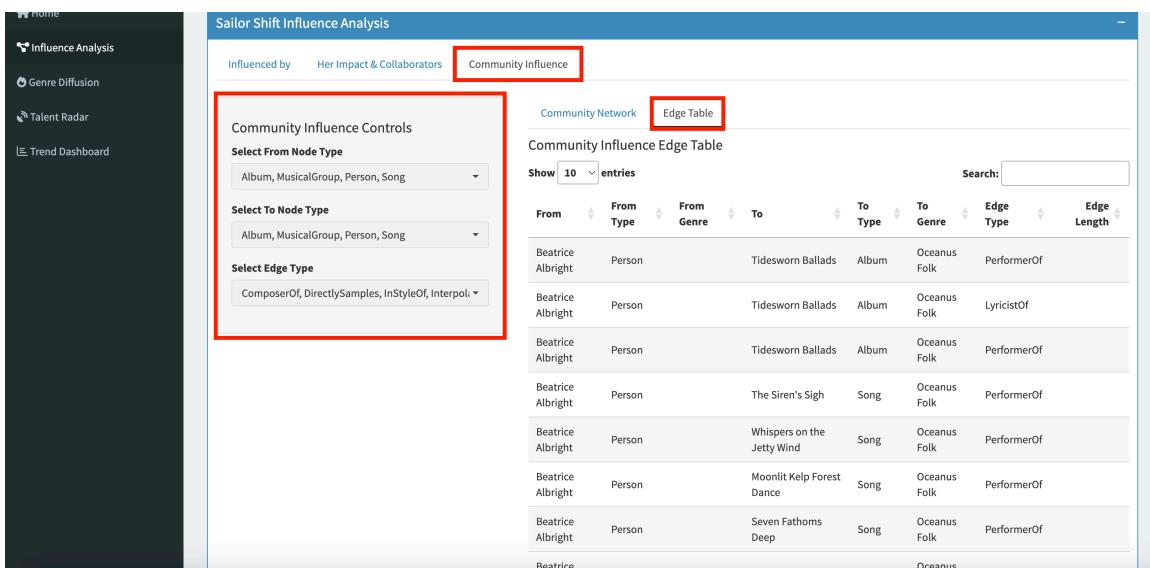


8. Click the “**Community Influence**” tab from the top navigation, under the sub-tab “**Community Network**”, and use the **Community Influence Controls** on the left.

- Select From Node Type (e.g., Person, Song)
- Select To Node Type (e.g., Album, MusicalGroup)
- Choose Edge Type (e.g., InStyleOf, InterpolatesFrom, etc.)
- Optionally: Use the dropdown to filter by **Community ID** (e.g., 1, 2, 3...)



9. Switch to the “Edge Table” tab under “Community Influence” and Review the table showing:
- From / To node names and types
 - Genres
 - Edge Type
 - Edge Length



1.2. Usage Recommendations for Influence Graph Studio

1. Start with Simplicity

☒ Begin with **1-hop depth** and broad filters to avoid overloading the graph.

- ❑ Gradually add complexity—extend to 2-hop or 3-hop only when needed.
- ❑ Use **Summary Statistics** to assess whether it's worth expanding.

2. Use Directional Analysis Intentionally

- "**Influenced by**" is ideal for tracing **stylistic ancestry** or discovering Sailor Shift's formative inspirations.
- "**Her Impact**" helps surface **downstream influence**, spotlighting who she has helped shape musically.

3. Cross-Tab Insights

- Combine **network view** with **genre impact** or **collaboration timeline** for richer storytelling.
- For instance:
 - Did a genre spike coincide with her major collaborations?
 - Are highly influenced nodes clustered by era or genre?

4. Zoom into Communities

- Use the **Community Influence** tab to reveal hidden groupings or creative hubs.
- Combine with **Edge Table** to export meaningful relationships for further processing in tools like Excel or Gephi.

2. Genre Diffusion Tracker

Module Purpose:

Track the stylistic evolution of Oceanus Folk and related genres by visualizing how styles propagate across artists. This helps uncover early adopters, genre blending patterns, and cross-genre evolution over time.

2.1 Step-by-Step Instructions

1. Click on “Genre Diffusion” in the left-side navigation menu.

The screenshot shows the EchoScope™ dashboard with a dark sidebar on the left containing navigation links: Home, Influence Analysis, **Genre Diffusion** (highlighted with a red box), Talent Radar, and Trend Dashboard. The main content area features a "Welcome!" section with a brief introduction to the prototype, mentioning the IESS608 Visual Analytics course project, VAST 2025 Mini-Challenge 1, and its focus on the artistic evolution of **Sailor Shift** and the influence of **Oceanus Folk**. It also describes the platform's similarity to **Apple Music** and its purpose for music analysts, A&R managers, and cultural researchers. A note at the bottom encourages users to explore other modules via the navigation menu.

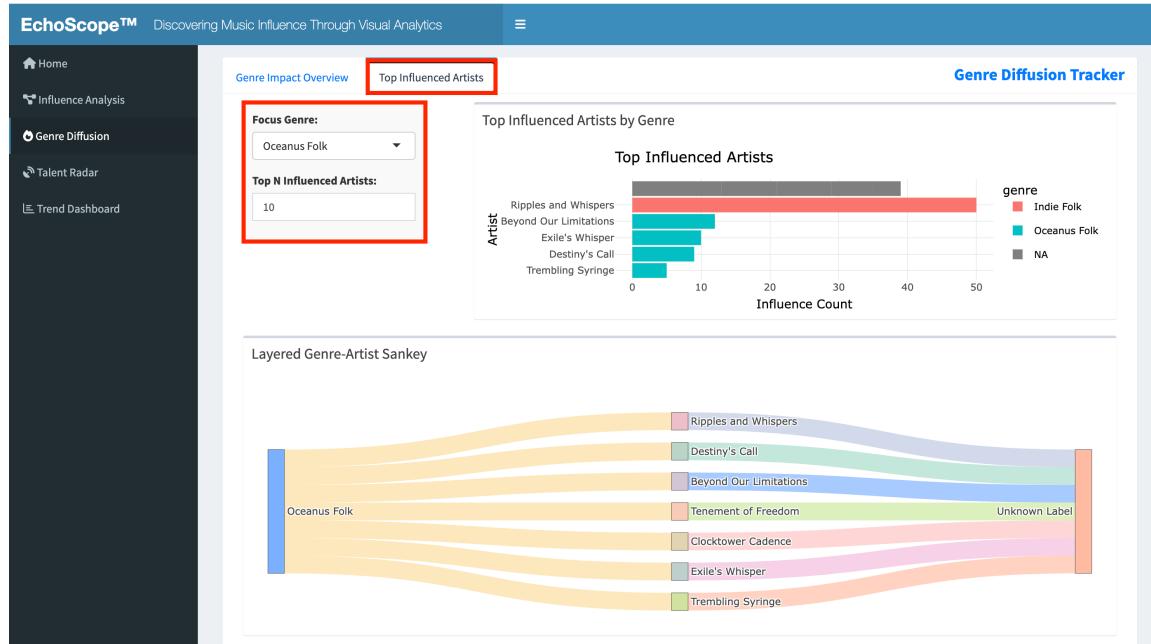
2. Open the “Genre Impact Overview” tab, and use the left-hand filter panel to configure:

- **Main Genre:** Select a genre to analyze (e.g., Oceanus Folk)
- **Year Range:** Choose the period for tracking influence
- **Node Type:** Typically “Song” or “Artist”
- **Influence Path Depth:** Choose 1-hop or 2-hop diffusion path
- **Sailor Shift Fame Year:** Define the transition point from pre- to post-fame

The screenshot shows the EchoScope™ dashboard with the "Genre Impact Overview" tab selected. The left sidebar remains the same as in the previous screenshot. The main area contains three main sections: "Genre Impact Overview" (with a red box around it), "Top Influenced Artists", and "Genre Diffusion Tracker". The "Genre Impact Overview" section includes a filter panel with dropdowns for "Main Genre" (set to Oceanus Folk), "Year Range" (1980-2038), "Node Type" (Song (Track)), "Influence Path Depth" (1-hop selected), and "Sailor Shift Fame Year" (2012). To the right are two network visualization panels: "Pre-Fame Influence Network" and "Post-Fame Influence Network", both showing complex clusters of colored nodes. Below these is a "Timeline Trend" chart showing the "Affected Count" over time (1983-2038) for various genres, with peaks corresponding to the network clusters. A legend on the right identifies the genres by color: Alternative Rock (pink), Americana (orange), Avant-Garde Folk (brown), Blues Rock (yellow), Darkwave (purple), and Desert Rock (green).

3. Navigate to the “Top Influenced Artists” tab and set the controls:

- **Focus Genre:** Choose the genre of interest (e.g., Oceanus Folk)
- **Top N Influenced Artists:** Input the number of top artists to display



2.2. Usage Recommendations for Genre Diffusion Tracker

1. Use Fame Year as a Temporal Breakpoint

- Set the **Sailor Shift Fame Year** to split influence analysis into "pre-fame" and "post-fame" phases.
- This helps detect whether fame catalyzed genre adoption or shifted influence patterns.

2. Follow the Flow of Influence

- ❑ Use **1-hop path** for direct influence and **2-hop** for indirect stylistic echoes.
- ❑ Leverage the **Sankey diagram** to trace how Oceanus Folk diffused across artist ecosystems.

3. Combine Network & Trend Views

- ❑ Compare **pre/post-fame networks** with the **Timeline Trend** chart to assess growth and reach.

- ¶ Look for spikes that align with historical events or collaboration clusters.

4. Identify Key Adopters

- The **Top Influenced Artists** tab allows you to pinpoint trendsetters and major receivers of influence.
- This is particularly valuable for talent scouting and cultural influence studies.

3. Talent Radar

Module Purpose:

Identify and score promising breakout artists using network metrics and stylistic similarity. This tool helps talent scouts prioritize based on a blend of impact, innovation, and trend potential.

3.1 Step-by-Step Instructions

1. Open the “**Talent Radar**” module from the sidebar.

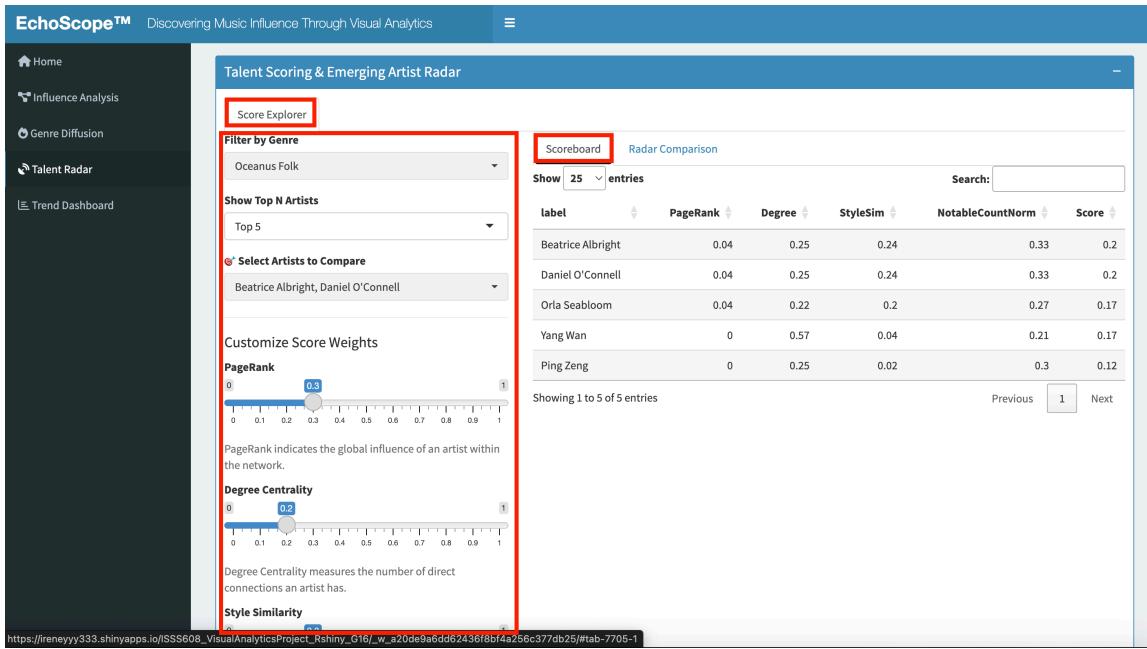
Welcome!

EchoScope™ is a web-based visual analytics prototype built for the **ISSS608 Visual Analytics** course project. It uses **VAST 2025 Mini-Challenge 1** data to explore the artistic evolution of **Sailor Shift** and the influence of **Oceanus Folk** on global music.

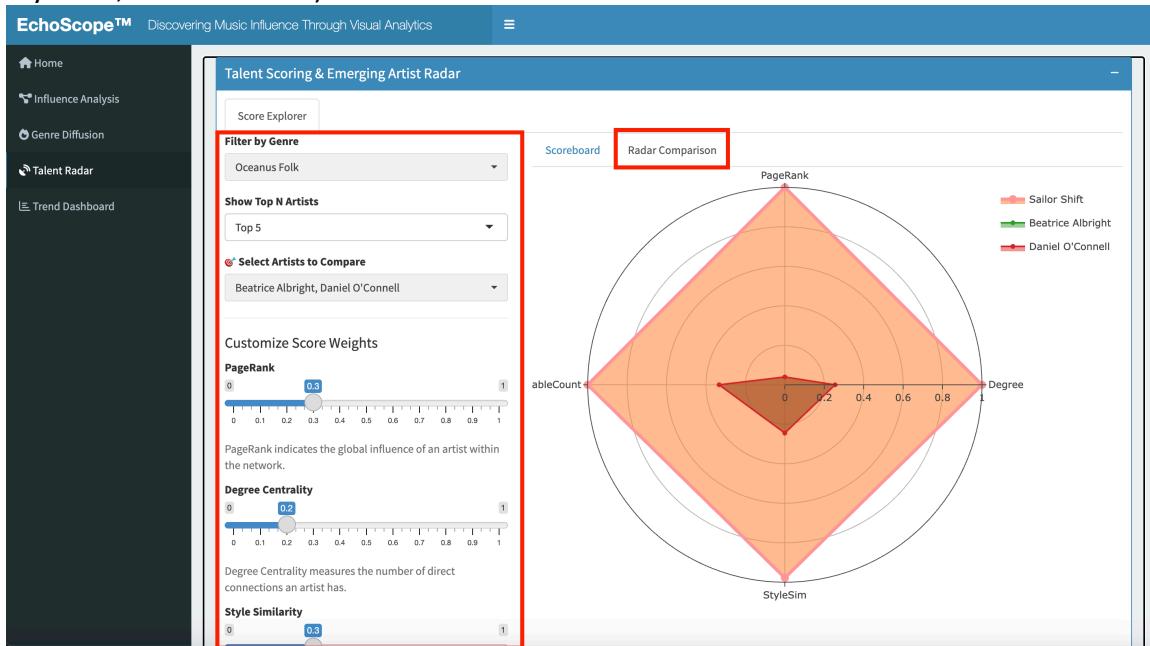
Our dashboard simulates a modern SaaS platform, offering interactive graphs and dashboards similar in experience to **Apple Music**. It allows *music analysts, A&R managers, and cultural researchers* to explore trends and talent.

Use the navigation menu on the left to explore different modules.

2. In the **Score Explorer** panel, adjust the **Score Weights** sliders to reflect different strategic focuses and read the **Scoreboard** table
 - **Filter by Genre** (e.g., Oceanus Folk)
 - Set the number of artists to display (e.g., Top 5)
 - Use the **Select Artists to Compare** box to choose individuals for radar visualization.
 - **PageRank:** Global network influence
 - **Degree Centrality:** Number of direct connections
 - **Style Similarity:** Genre/style match
 - **Notability Recency:** Influence freshness or trendiness
 - Sort by any metric (e.g., StyleSim, Score)
 - Use the table to shortlist high-potential artists



3. After selecting artists in the Score Explorer panel, switch to the **Radar Comparison** tab. A radar chart will appear showing multiple artists (e.g., Sailor Shift, Beatrice Albright, Daniel O'Connell). Each axis represents one metric (PageRank, Degree, StyleSim, NotableCount).



3.2 Usage Recommendations for Talent Radar

The Talent Radar module is designed to help users identify and compare emerging artists based on customizable scoring metrics. Here's how to get the most out of it:

1. Tailor Scores to Your Strategy

- Adjust weights for **PageRank**, **Degree Centrality**, **Style Similarity**, and **Recency of Notability**.
- These weights let you prioritize global influence, local popularity, stylistic alignment, or freshness.

2. Rank and Filter with the Scoreboard

- ❑ Use the **Scoreboard** tab to sort artists by score or individual metrics.
- ❑ Filter by genre and select top N artists for focused comparisons.
- ❑ Ideal for creating shortlists or high-potential watchlists.

3. Use Radar Comparison for Quick Insight

- ❑ Visually compare artists across metrics in the **Radar Comparison** tab.
- ❑ Look for well-balanced vs. spiked profiles to match project goals (e.g., consistent performers vs. specialists).

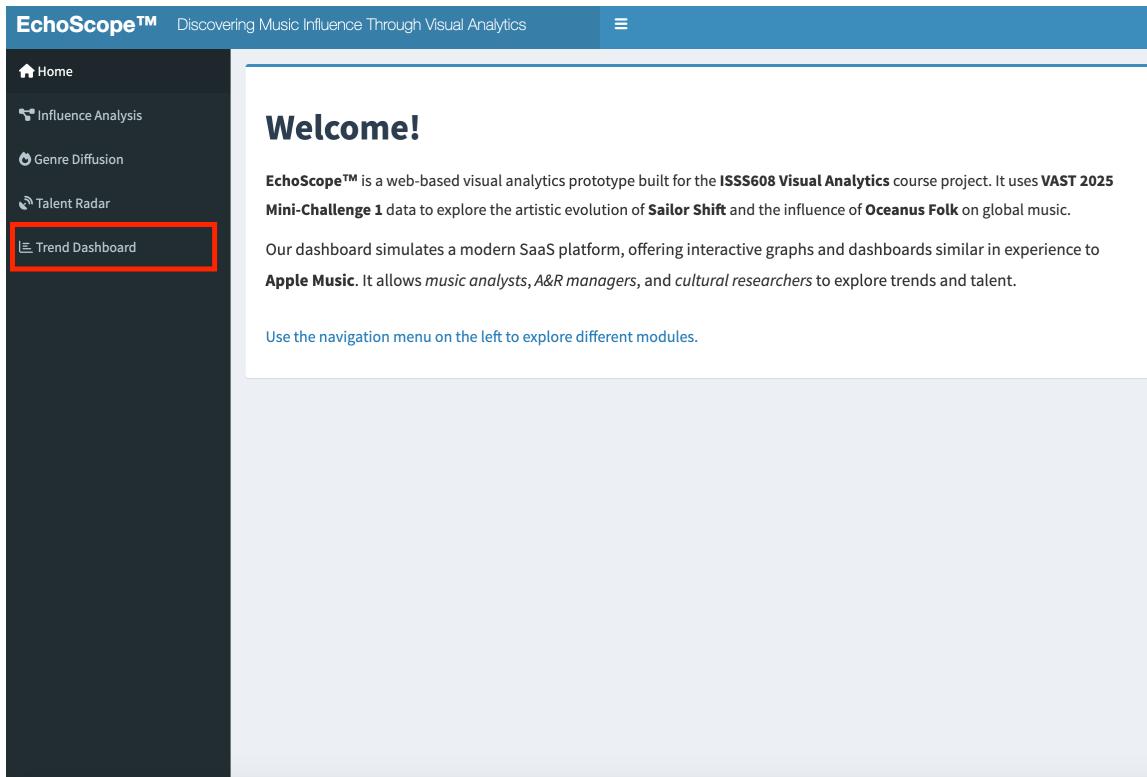
4. Iterate and Explore

- ❑ Try different weight combinations to explore alternate ranking outcomes.
- ❑ Useful for cross-validating your instinctual picks with data-driven evidence.

4. Trend Dashboard

Module Purpose:

Explore big-picture shifts in genre development and artist emergence over time. This dashboard is ideal for spotting macro trends, peak periods, and growth dynamics within musical ecosystems.



4.1 Step-by-Step Instructions

1. Navigate to the **Trend Dashboard** module from the sidebar and in the **left panel**, configure the following:

- **Select Genre(s):** Choose the genre to analyze (e.g., Oceanus Folk)
- **Year Range:** Adjust the slider to focus on a specific time window
- **Show Layers:** Check or uncheck layers like Artist Count, Song Count, Newcomer Count

EchoScope™ Discovering Music Influence Through Visual Analytics

Home
Influence Analysis
Genre Diffusion
Talent Radar
Trend Dashboard

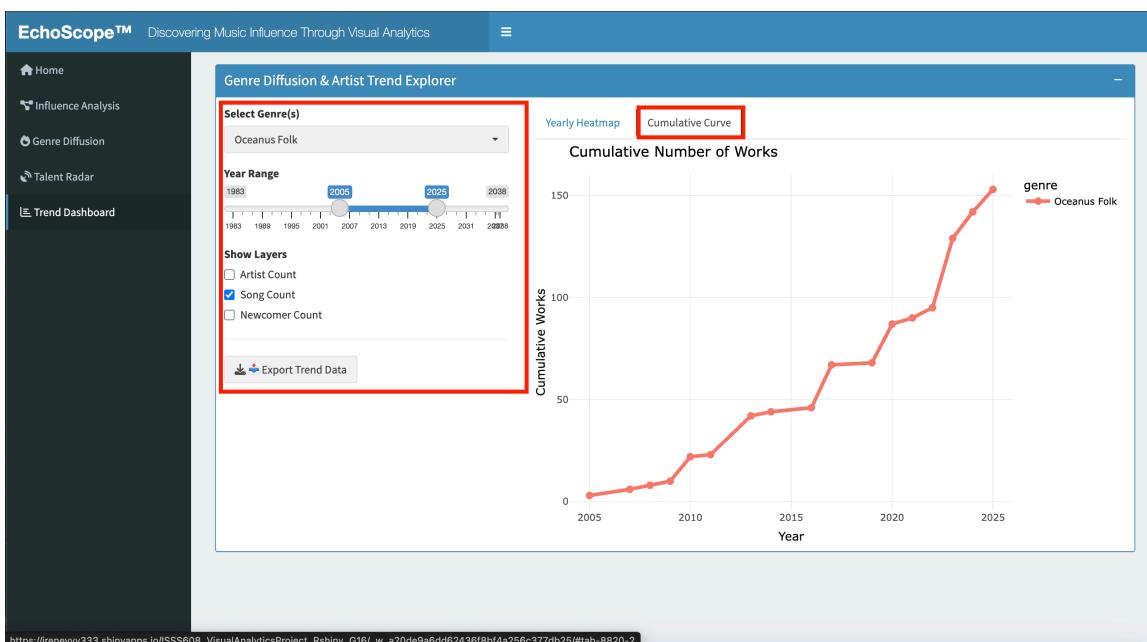
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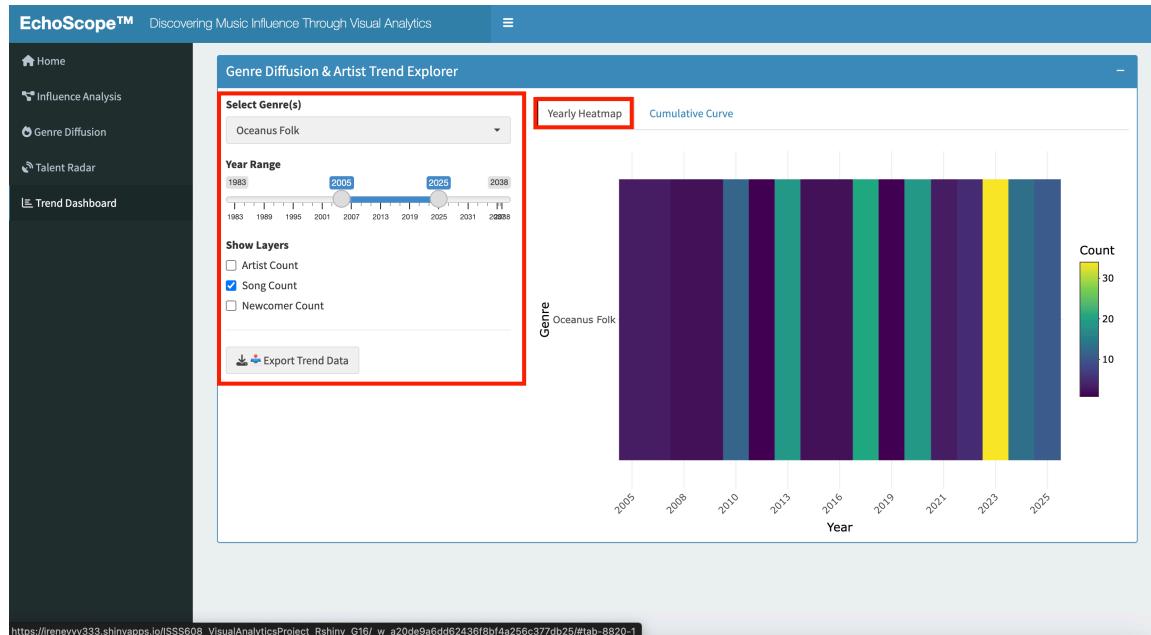
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Use the navigation menu on the left to explore different modules.

2. Select the **Cumulative Curve** tab above the chart area and view the line chart representing the cumulative number of works over time.



3. Use the same **left-side filter panel** to configure genre, year range, and layers as in the previous view and switch to the **Yearly Heatmap** tab.



4.2 Usage Recommendations for Trend Dashboard

1. Select Genre(s) and Time Range

- ☒ Use the dropdown to choose one or more genres.
- ☒ Adjust the **Year Range** slider to zoom into specific eras of interest.

2. Customize the Trend Layers

- ☒ Choose which layers to visualize:
 - **Artist Count** for activity level
 - **Song Count** for production trends
 - **Newcomer Count** to detect fresh entries

- ☒ These layers can be toggled on/off to isolate trend drivers.

3. Analyze Cumulative Growth

- Use the **Cumulative Curve** tab to visualize genre momentum.
- Great for long-term trajectory analysis and strategic investment forecasting.

4. Spot Spikes in Heatmap

- Switch to the **Yearly Heatmap** tab to pinpoint peak activity years.
- Helps uncover cultural or release-cycle patterns.

5. Export for Reporting

- Use the **Export Trend Data** button to download filtered results.
- Ideal for external reporting, presentations, or deeper analysis.

Tips for Users

- Click any node or data point for more detail.
- Most visuals support hover-to-highlight and click-to-filter.
- Use export buttons to download graphs or tables.
- Best viewed in Chrome or Edge on desktop.

Recommended Users

- A&R professionals – Spot promising talent through network and style metrics
- Music marketers – Detect rising genres and peak timing for campaigns
- Cultural researchers – Trace stylistic lineage and genre evolution
- Music data analysts – Investigate influence structures and cross-genre patterns