Visualization for Jazz Musicians

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Abstract

We created jazz musician maps that displayed the similarities between musicians in terms of instruments, genres, and active years. For jazz musician data visualization, we selected 229 musicians associated with Wynton Marsalis and Roy Hargrove and used their instruments, genres, and active years as variables. We separated the data matrix by variable and turned each into an affinity matrix, and then we combined all of the affinity matrices and utilized PCA and t-SNE to reduce the matrix to two dimensions, resulting in jazz musician maps that were more informative than Linked Jazz. When we colored by variables, the instruments and genres were multi-value variables, meaning the musicians played more than one instrument or genre. Therefore, we presented that utilized the three primary colors of the CMYK color system to represent three groups and then tuned the color based on the number of each group to be the progressing method of coloring.

Keywords: jazz musician maps, visualization, multi-value variables

爵士音樂家資料視覺化

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摘要

我們使用爵士音樂家的資料建立一些視覺化圖形，這些圖能顯示音樂家在樂器、曲風和活躍年代上的相似程度。針對爵士音樂家的資料視覺化，選擇以 Wynton Marsalis 和 Roy Hargrove 為首的 229 位音樂家，並以他們的樂器、曲風和活躍年代做為資料矩陣的變數。我們將這些變數分別處理、運算得出各自的相似度矩陣，再將這些矩陣合併，用 PCA 和 t-SNE 降至二維。把二維的資料點繪製在平面上得到目標圖形，這些圖形比現有的 Linked Jazz 能顯示出更多的資訊。當我們用變數上色時，發現大部分的音樂家都不只演奏單一樂器或曲風。針對樂器和曲風這類多值變數 (multi-value variable)，我們提出以三原色分別代表三種類型、接著依照比例進行調色，以此作為上色標準。

關鍵字：爵士音樂家、資料視覺化、三原色、多值變數