interactive music mapping vienna

networks in space and time

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scope - what to expect

interdisciplinary project interactive music mapping vienna (immv)

based on: “gone full circle: a radial approach to visualize event-based networks in digital humanities” [filipov et al. 2021]

collaboration between musicologists, historians, and computer scientists

context, results, and experience

ongoing research
definitions

**visual analytics (va):** “.. *the science of analytical reasoning facilitated by interactive visual interfaces.*” [illuminating the path, thomas & cook, 2005]

**network visualization (netvis):** is an abstract way of representing data as objects (nodes) and relationships (links), and can be used to model and visualize problems in a wide range of application domains.

**digital humanities (dh):** is an area of scholarly activity at the intersection of computing or digital technologies and the disciplines of the humanities.
interdisciplinary project aimed at mapping the history of public festivities 1945 -- present day

goal is to expose narratives that contributed to the construction of the city’s musical identity and their connection to historical events

positioned in the domain of musicology and is conducted mainly by historians performing critical analysis of events
networks in the humanities

research questions and methods stem from a different epistemological standing [hinrichs et al. 2017]

modelling data for historical research is challenging [börner et al., 2019]

data is rich and interpretable with many different and complex characteristics [lamqaddam et al. 2018]

networks are flexible and can model such structures to represent the intricacies and complexity of this type of data [lincoln, 2016; schetinger et al. 2019]
examples of networks in the humanities

[lamqaddam et al. 2018]
examples of networks in the humanities

1580–1590

1640–1650

[lincoln 2016]
problem description

paradigm shift in the way time is represented [Simonetto et al., 2020]
  from time slices and temporal aggregation to event-based data

limits of complexity [Yoghourdjian et al., 2018]
  visual scalability concerns with increasing network size and dynamics

simplicity, aesthetics & engagement [Borkin et al., 2013]
  radial visualizations [Draper et al., 2009]
  novel network metaphors [Beck et al., 2017]
problem description: data

network relating disparate entities in spatial and temporal contexts

six different types of entities with events at the center
problem description: users

aimed at humanities experts with domain knowledge
to support exploring historical narratives on the basis of events
to engage with discovering and interacting with viennese musical history
problem description: tasks

**goal:** support a variety of tasks ranging from high-level to low-level [brehmer & munzner, 2013]

**present:** a straightforward, aesthetic, and engaging interface to gain an overview of the event-based network

**compare:** entities or groups of entities that exhibit similar characteristics to observe their development over time

**explore:** navigate the network and dive into more details

**identify:** (dis-)continuities of themes and historical developments

**verify:** validate the data
approach
visual encoding
visual encoding

A

Life span

Event Cluster

Anton Webern

B

Time

Rescaled

Anton Webern

Same Event Cluster
visual encoding
visual encoding

grouping by:
- role
- exile status
- born after 1945
- died before 1938

ordering by:
- birth
- death
- first postdeath event
visual encoding

Timeline illustrating events

Details of a person's life

Selecting a time period & count of each event type
interactions: mouseover
interactions: filtering
interactions: ordering & grouping
interactions: zooming
interactions: selection & details
evaluation/feedback

domain and visualization experts participating in a study

interesting approach to explore linked historical data

radial component was considered aesthetically pleasing, compact, and interesting

interactions engaged the participants and enabled to explore more details and new information

participants kept exploring some interesting parts even after concluding the study
limitations

**learning curve** required explaining of the encoding and interactions

**no guidance** to point / suggest interesting points in history

usability issues & feature requests

  - navigating back and forth between different selections
  - no ability to lock in the selection of the period of time
  - some issues with hiding sections of the interface
ongoing/current research

networks in digital art history -- fwf project ‘artvis’ (P35767)

goal: better understanding of how the components of the art system (persons, objects, places, institutions, and events) interact with each other and how these interactions vary over time by leveraging dynamic network visualization

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thank you

q&a?

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