Who Rules Infovis? Unwrapping the Conference Organization

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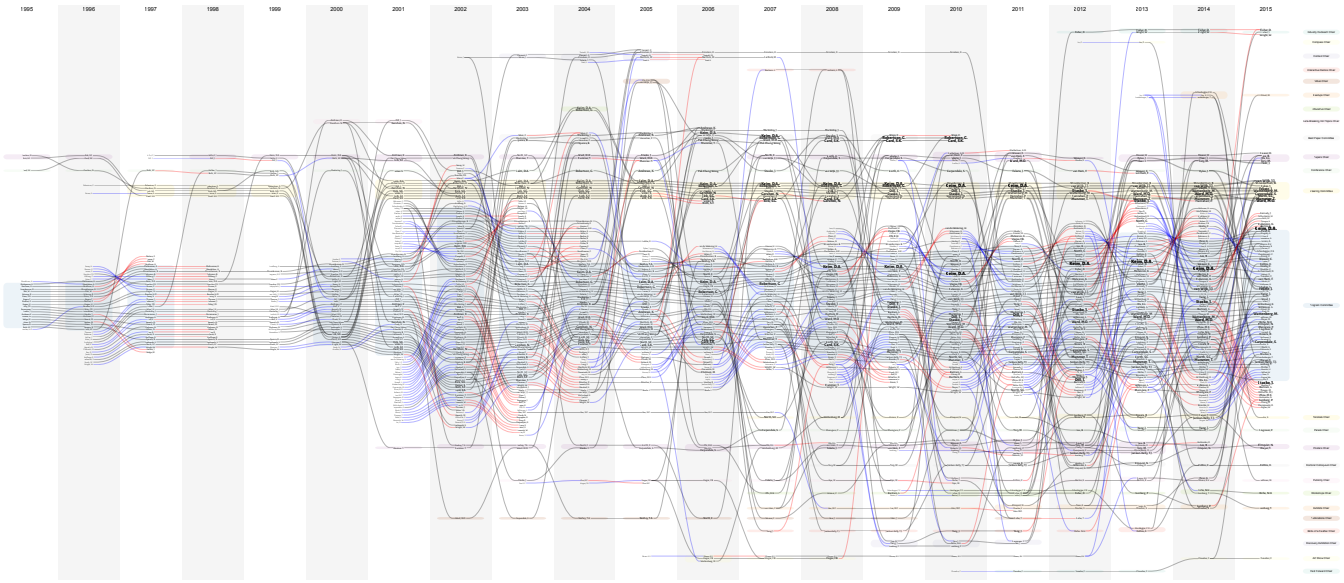

Figure 1: Researcher roles from 1995 to 2015 in the Infovis conference. Persons are grouped by role (chair or member of a committee) each year. The font size and weight encode the number of roles a person had up to the current year. A red link represents a person leaving a role and a blue link a person entering a role. The stroke width of links encodes the number of publications of a person at Infovis up to the current year.

Abstract

Members understanding the organization of a community is useful for any community. Correspondingly this applies to researchers involved in the Infovis community. We present *Who Rules Infovis?*, an infographic showing the temporal evolution of the internal organization of the Infovis conference. It shows all persons who have been a chair or in a related committee over the past 20 years and provides an understanding of the internal organization of the community.

1 Introduction

Any researcher willing to be involved in the community wants to understand how this community works, how persons access positions with responsibilities such as being a chair or in a particular committee, and how academic contributions such as publications play a role in this process. The community itself needs to grasp how it behaves over the years in order to question the organizational process and maybe make adjustments. Although the data is publicly available, understanding the internal politics is challenging and no guidelines exist for helping researchers achieve their goals. Our intent is to provide the dataset and an initial view on this dataset, hoping that other researchers will use this groundwork to contribute to a better understanding and transparency within the community, as this is the case with CiteVis [3] for example.

To achieve this goal, we created a web-based visualization designed to understand the Infovis chair and committee evolution over the years (Figure 1), available at `http://innovis.cpsc.ucalgary.ca/Research/WhoRulesInfovis`. We detail the data collection and the visualization design, we give examples of insights one can get by looking at the visualization, and we discuss potential implications.

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2 Data Collection and Filtering

The first step was to gather and filter the data. The main dimension of interest is the persons being part of a committee or being a chair at the conference, that we call *roles*. This information being only partly available online, we had to manually process some of the paper proceedings to complete the dataset.

Some roles in the VIS conference are not exclusive to Infovis. We chose to remove the roles that are global to the conference, such as Student Volunteer and Finance Chairs, as well as exceptional roles such as Bertin Exhibit Chair at VIS 2014. The Program Committee (PC) being the core of the conference, we filtered out the persons who may have had a role in the conference but have never been in the PC, except before 2006. Therefore, some persons (e.g., Ben Fry, Alex Endert, and the first author of this poster) are not represented.

Since an important factor of involvement is the number of publications in the conference, we integrated the publications dataset [2]. In total, the dataset consists of 25 roles over 20 years for 223 persons.

3 Visualization Design

We use position to map the two core dimensions: the roles at the conference and the year they were held. Role boxes are distributed on the vertical axis and time is mapped to the horizontal axis. The vertical center of role boxes is fixed to ensure layout stability over the years, and their ordering is determined according to the number of links (i.e. number of times one person connects two roles) between each pair of roles. It also makes it possible to add the legend for each role on the right side of the visualization. Only by looking at the size of each role colored box, one can already understand how the number of persons a role contains evolves over the years.

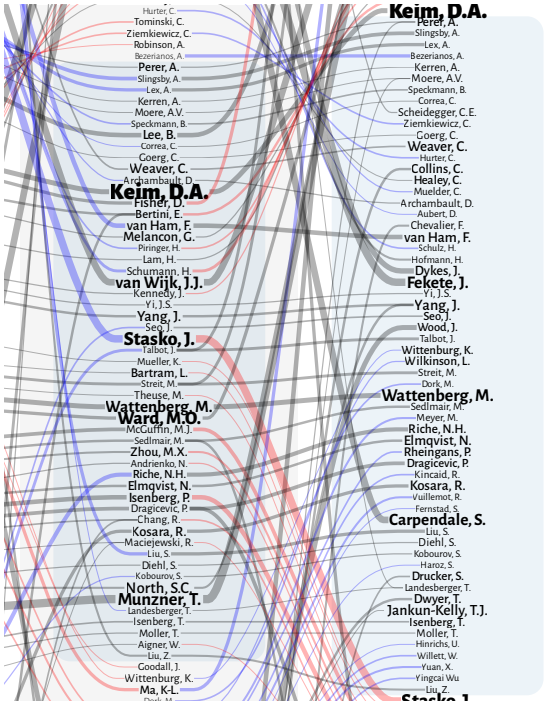

Figure 2: Program Committees for Infovis 2014 (left) and 2015 (right).

The remaining graphical elements consist of persons. The name of each person is repeated every year and connected using bezier links. The font size and weight of the name encodes the number of roles this person had up to the current year, and the width of each link the number of publications at Infovis for the person up to the current year. Finally, the link color conveys the evolution of the person from one year to the other: a blue link means that the person got a role while he or she did not have any the previous year; a red link that the person got no role while he or she had one the previous year; and a gray link that the person had at least one role the previous year, and at least one role in the current year. A person appears the year before his or her first role, and disappears the year after his or her last role. If a person does not have a role a given year, he or she is assigned one of the vertical positions with no role (typically, the space between two role boxes). Because one person can have multiple roles for a given year, links split and merge accordingly. As a result, the name of one person can appear several times for one year. Finally, the algorithm minimizes the vertical variation locally for each person. The overall result is similar to the ones from Tanahashi et al. [4, 5], inspired from XKCD storylines.

4 Reading the Visualization

By looking at the static infographic, one can make discoveries and get a better understanding of the internal organization of the conference. Here we discuss some observations at the overall information, intermediate, and elementary levels described by Bertin [1].

At the overall level, one can observe that there was no PC in 1998 and 1999. Also, some roles disappear and others appear. For example, Late-Breaking Hot Topics Chair existed only in 2000–01, Interactive Demo Chair only in 2007–08, and Industry outreach Chair appeared in 2012. It also appears that the number of persons in the organization of the conference increased over the years.

At the intermediate level, one can analyze the trends within roles over the years, by visually scanning the links' size and color, the links' direction, and the persons' font weight and size. For example, Figure 2 shows the PC members in 2014 and 2015. One can observe that people entering the PC (blue links) globally have a larger link width in 2014 than in 2015. Moreover, only few persons in the 2015 PC have a large link width. Finally, the names with the bolder and larger font in 2014 are not present in 2015. Based on these facts, it seems that the PC in 2015 is less experienced than the one in 2014, regarding both the number of publications and the number of roles PC members have had in the past. By simply estimating the sum of all links width and name sizes for a given year and a given role, one can evaluate the experience of the role members. Analyzing the rotation for each role is another interesting inquiry, as these rotations are supposed to follow rules (e.g., no more than three consecutive years as a PC member) which may be violated.

Finally, at the elementary level, one can inspect persons and analyze their path over the years in order to understand the mechanisms inside the conference organization. One may observe that three types of persons are involved in the Infovis conference organization. The *balanced* are those that equally publish and get involved. Visually, balanced persons are those whose name font width and size are proportional to the stroke width of the links connecting the name. Such people are Munzner, T., van Wijk, J.J., Isenberg, P. and Stasko, J. The *organizers* are those that do not publish a lot in Infovis but are recognized as being good organizers. They have a large name with thin links. For example, Keim, D.A. is the biggest and boldest name, but does not have the larger links: he is more involved in the community as an organizer than as an author. The same observation can be made for example for Ward, M.O. and Bartram, L. The *publishers* are those that publish a lot but are less involved in the organization. They have a small name with large links.

5 Discussion

Although this visualization is designed to be analyzed in its static form, the online version features basic interactions (hovering over a person and selecting multiple persons to highlight them) and in the future we plan to increase the available features. For example, being able to formulate queries to filter out persons would provide a way of specifying meaningful requests and unclutter the visualization.

In the future, we plan to include VAST and Scivis data. It creates new challenges in terms of quantity of data to represent, but would provide interesting views about across-conferences relationships.

We are sure that this poster will trigger interesting conversations during the conference and may create some polemics. This is often the case when visualizing a dataset, although the data is publicly available. We hope that this initial work will encourage other researchers to pursue in this direction, towards more transparency and a deeper understanding of the internal processes of the conference.

Finally, this visualization focuses on the organizational structure of the Infovis conference along with its members. However, these persons are not the ones that ultimately *rule* Infovis. Accessing the data about influential and decision-taking groups would strengthen the visualization towards a better understanding of the community.

6 Acknowledgments

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