The Symmetry of My Life: An Autobiographical Visualization

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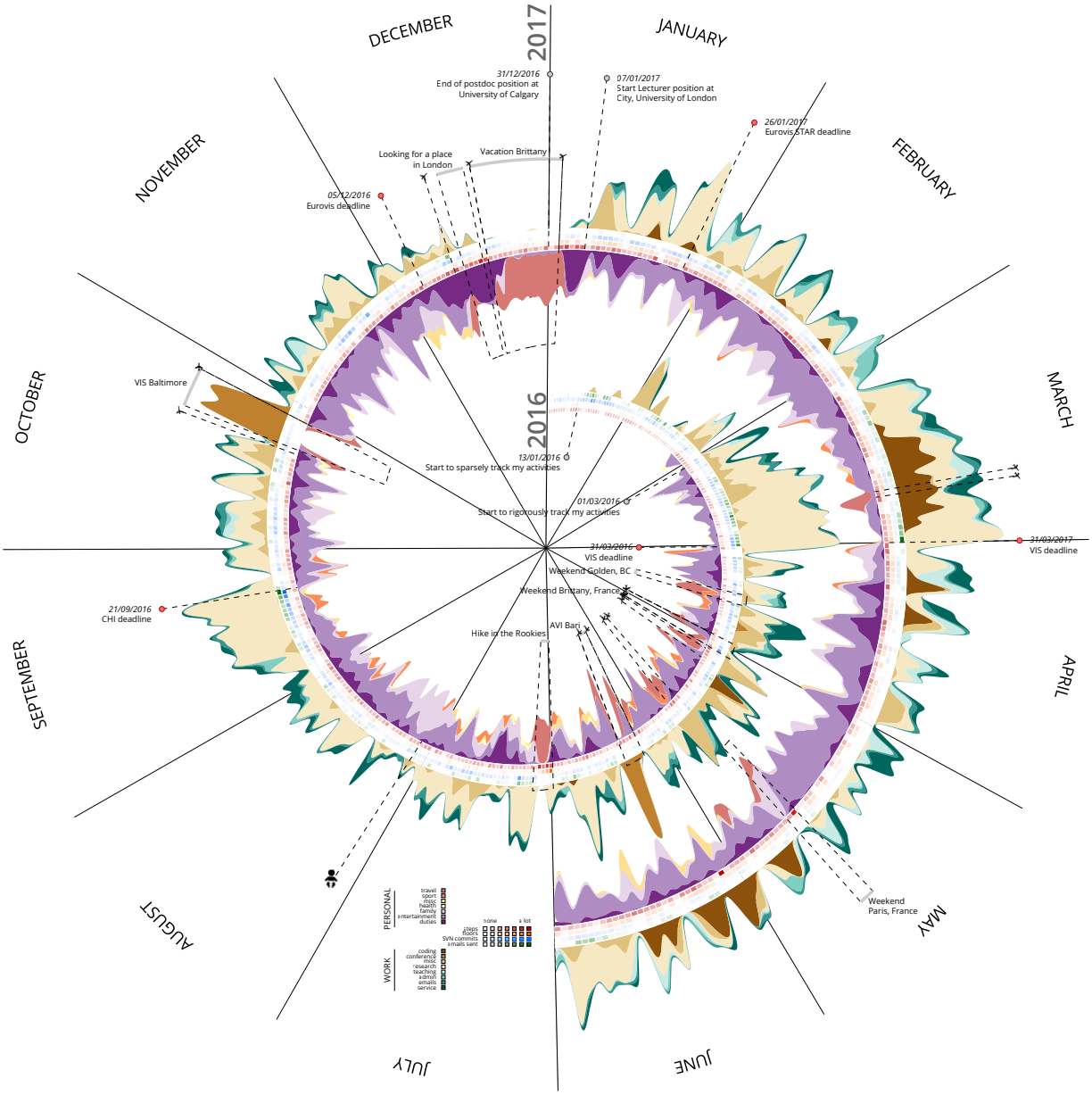

Figure 1: Streamgraphs show manually collected work and personal daily activities on the two sides of a spiral timeline. Coloured squares shows daily steps, floors, emails and SVN commits. Annotations provide contextual information, such as travels, deadlines, and important events. While this autobiographical visualization allows for reminiscing and reflecting on personal data, its main purpose is to communicate personal stories and *share* personal experiences.

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Abstract

I present an autobiographical visualization of the past 18 months of my life that shows work and personal activities, steps, floors, emails, SVN commits, and contextual annotations. The spiral layout makes both cyclical and symmetrical patterns emerge. The resulting autobiographical visualization makes it possible to both reminisce and share personal stories.

1 Introduction and Motivations

Personal narrative visualizations are defined as *"visual data representations that tell stories about personal experiences from the point of view of the narrator"* [6]. They are a type of visual memento, which are *"visualizations of personally relevant data for the purpose of reminiscing, and sharing of experiences"* [4]. If a visual memento focuses on personal storytelling and sharing of personal experience rather than reminiscing and self-reflection, then the visual memento can be called an *autobiographical visualization* [5].

In this poster, I present an autobiographical visualization through which I explore my personal history. The aim behind creating this artefact is to present routines and patterns in the life of a researcher at a cornerstone moment in life (first academic position and parenthood). The design goals, or design challenges, I had when creating this autobiographical visualization were as follows:

- To maintain privacy, the visualization must obscure sensitive data and discourage the precise reading of individual values. Obscuring sensitive data is an established challenge when designing visual mementos [4].
- The layout should show cyclical patterns, i.e., it should emphasize what I subjectively consider important to communicate and share in the data [6].
- As the artefact is to be shared, the visualization should be aesthetically pleasing.
- The visualization should be a visual memento in that it allows me to both self-reflect and share experiences.

2 Realization

The primary decision was to use a spiral layout. Spiral layouts have been explored for visualizing time series data, including in a quantified-self context [3], as they are well suited to showing cyclical patterns [8]. For example in this poster, the spiral layout highlights the dramatic increases in work activities in March and September, for the VIS and CHI deadlines – at the expense of personal life. To a lower extent, there are some symmetric vacations during summer and around Christmas.

The choice of a spiral layout was also driven by aesthetics. This is also for aesthetic purposes that I originally chose to use stacked area charts (or streamgraphs) to represent work and personal activities. Streamgraphs are praised for their aesthetics [2] and have been successfully used to represent e.g., personal music listening histories [1]. I later realized that my choice of using streamgraphs had another crucial benefit: they are *hard to read* and considered inaccurate (see [7] for a discussion on the readability of stacked graphs and their variations). While this can be an issue when accuracy is important, in my case this weakness becomes a strength of the representation. Indeed, I do not wish to convey precision and exact values; I do not want people to be able to read private values about my work and life. So in this particular context where obscuring details matters, streamgraphs are well suited to convey the gist of the data, overall trends and patterns. For the same privacy reasons, it is on purpose that there is no scale nor axes in the visualization, and no values in the legend.

Combining the spiral layout with the streamgraphs reinforces cyclic patterns over the years. The more the empty space between the upper stream of year y and the lower stream of year $y+1$ looks constant, the more y and $y+1$ are similar for this period. This is the case for March 2016 and March 2017, for example. On the contrary, non-cyclic significant events result in streams almost touching each other. For example, the long week end in Paris at the end of May 2017 resulted in an unusually low amount of work for that period, and an unusually high amount of personal activities. These cyclic and symmetric patterns emerge naturally from the visualization and support the subjective data discourse I want to share. In that sense, it fulfils the needs of an autobiographical visualization. Adding data-driven annotations also reinforces events that I consider important for the different narratives.

The artefact, however, also allowed me to reminisce. I could for example confirm the fact that I have a deadline-driven rhythm, and that I almost never completely stop working (Christmas 2016 was an exception). These confirmatory findings were important in establishing trust towards the visualization I was creating. I also made some more unexpected discoveries about myself. For example, the very regular work/life patterns since January 2017 show that I work less during weekends since I moved to London. It also forced me to acknowledge some reality. For example, the amount of time I devote to entertaining is dramatically larger than what I expected – and I already forced myself to take longer vacations.

3 Reflections and Future Work

This project helped me realize some of the challenges of creating autobiographical visualizations. In particular, the **technological barriers** are huge. Collecting and formatting (often incomplete and full of errors) data from many sources (fitbit, emails, toggl, SVN logs) is tedious and time consuming. However, the process is challenging to optimize and generalize as every individual has different techniques and tools for collecting data. Also, while this amount of data is relatively small, it is still too big to be handled manually. I am concerned that realizing this kind of project is the privilege of computer scientists only. This emphasizes the need for more research towards designing authoring tools for personal use.

This project also stresses the need to, sometimes, create inaccurate representations of data. What makes visualizations ineffective, obscure, and inaccurate is an intriguing direction to pursue. It is particularly useful when dealing with private data to be shared with others, but can also inform research on uncertainty visualization.

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