graphic designers to identify concrete workflows and techniques that they use to produce creative visualizations.

To inform our grammar design, we will first look at representative examples of published infographics. Our goal is to develop interactive tools that assist this creative process. Professionals commonly switch between sketches on paper and computers to reach a new visualization design [Landers and Heller, 2014]. Computer programs are powerful tools that allow professionals to generate solutions keeping a direct binding with the underlying data. But many expert designers first start by exploring visualization solutions through hand-drawn sketches (see Figure 1). Before having access to the actual data, sketches enable them to "visualize the architecture of the infographics and cultivate ideas for shaping the data visually," while later, sketching with data can "help raise new questions about the data itself" [Lupi, 2015].

Unfortunately, dominant visualization systems target data exploration and data-analysis tasks and fail to meet communication purposes [Xanana, 2016]. Previous studies [Blythe, 2014] also suggest that current visualization tools impose a data-to-graphics workflow that hinders visual thinking. As a result, the process of creating an original infographic can be extremely manual, involving multiple tools that are largely disconnected from the underlying data. In contrast, we aim to address the more ambitious goal of computer-aided design that treats infographic creation as a visual-thinking process that is data-driven, that is, they assume that data are already present and have the right format; (2) they do not deal with partly defined visualizations; (3) they support a fixed range of charts in Cartesian coordinates only; and (4) they do not explicitly support sketched graphics. We therefore need to create a new grammar that supports flexible encodings of bespoke visualizations, where these visualizations may consist of informal sketch-based renderings.

To inform our grammar design, we will first look at representative examples of published infographics and artbooks. We will further conduct contextual interviews with infographic artists and graphic designers to identify concrete workflows and techniques that they use to produce creative visualizations.
visual representations. We will also draw inspiration from existing powerful visualization authoring systems, such as DataInk (Xia et al., 2018), Charticulator (Ren et al., 2019), and StructGraphics (Tsandilas, 2021).

References


Compétences

The candidate is expected to have a Master degree (M2-level for the French system) and background in Human-Computer Interaction, Information Visualization, or Computer Graphics. The candidate must have solid programming skills and be enthusiastic about conducting research (and continue for a PhD thesis) in a topic that combines the above fields.

Avantages

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave: 7 weeks of annual leave + 10 extra days off due to RTT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
- Possibility of teleworking (after 6 months of employment) and flexible organization of working hours
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Access to vocational training
- Social security coverage

Rémunération

Gratification