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Draw Attention: guide the observer's attention to selected data employing a systematic variation of the preattentive attributes and using saliency maps to identify which charts have the highest saliency on the selected data [1].



Right combination of color, texture and orientation to highlighting the selected data subset.

How humans perceive images details can impact the **efficiency and effectiveness** of their cognitive process. However, the **design element's impact** on image visualization is distant to graph designers. This reflects **a gap between the broad theory** about the visual element's influence and the **graph designers**.

2. Aim

Integrate visual-cognitive concepts into de information visualization design process. We intend to bring those concepts to the graph designer's environment and provide insight into how her design choices might affect the observer's perception.





Measuring Design Decisions: we integrated a saliency model into a Data Visualization System, making it part of the graph design process. We become explicit how each design decision changes the attention on the graph.

4. Insights

InfoVis Saliency Models perform satisfactorily. However, some improvements should be made, considering the statistical aspect of images.

We demonstrated that it is possible to automatically modify graph visual elements and use saliency maps to meet the graph designer's specific needs [1]. Saliency assessment within the design process gives the graph designer a quantitative validation of her design decisions.

InfoVis Saliency
Model
validation with
Eye-tracking
Data.Draw the attention
to the most relevant
data
guide the observer's
attention.Integrate saliency
maps prediction into a
Data Visualization
Systems as part of
graph design process.

3. Approaches

Saliency Model Validation: We validated how efficiently the InfoVis saliency models predict the observer's attention by Eye-Tracking collected data. 5. References

- L. Barrera-Leon, F. Corno and L. de Russis, "Systematic Variation of Preattentive Attributes to Highlight Relevant Data in Information Visualization," 2020 24th International Conference Information Visualisation (IV), 2020, pp. 74-79.
- 2. L. Barrera-Leon, F. Corno and L. de Russis, "How the Preattentive Process is Exploited in Information Visualization: a Review," International Journal of Human–Computer Interaction (Submitted 2021).