

The combination of interactive visualization with AI approaches has been extensively researched in the field of visual analytics and other data science-related disciplines. These efforts led to many improvements in data analysis and exploration methods. In particular, complex tasks involving high-dimensional, heterogeneous, and dynamic datasets were supported by such solutions. The development of generative approaches has provided the means to support creative tasks and also to solve sensemaking problems.

The seminar highlights and discusses the role of interactive visualization in both classical Machine Learning (ML) approaches and developments in recent generative AI. These include but are not limited to interactive visual workflows to support data analysis, creative tasks, and for explaining models. Another focus will be on visualization methods that help in configuring, training, and evaluating AI solutions. Approaches for generating visualizations with foundation models will also be discussed.

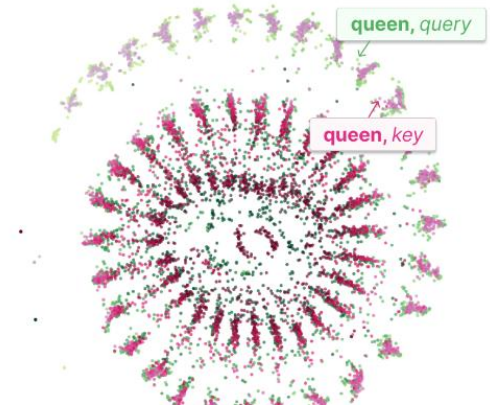


Figure 1: Global Transformer Attention, Yeh et al., 2023 [1]

Fascinating research questions arise in the areas mentioned above. For example, how trustworthy AI results are, how interactive visualization can support assessment when ground truth is lacking, how interactive workflows can enable users to steer AI methods, how bias in models can be detected, and many more.



Figure 2: Neural Canvas, Shen et al., 2024 [2]

The seminar participants will present and discuss the role of interactive visualization in the abovementioned areas. Each participant will be assigned a sub-topic for which they have to research related work based on articles provided by the seminar organizers. All participants will give a presentation explaining their topic to the other seminar participants.

Additionally, all participants have to write an article summarizing and highlighting the important details of their respective topic.

Target Group:

Master's students in the field of Computer Science

Language:

English

Room/Location:

Details will about place in time will be announced either in C@MPUS or via E-Mail.

Organizers:

Prof. Daniel Weiskopf

Dr. Steffen Koch

References:

- [1] Yeh, Catherine, et al. "AttentionViz: A Global View of Transformer Attention." arXiv preprint arXiv:2305.03210 (2023).
- [2] Shen, Yulin et al. Neural Canvas: Supporting Scenic Design Prototyping by Integrating 3D Sketching and Generative AI. In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems. <https://doi.org/10.1145/3613904.3642096>