Visualisation Design Ideation with AI: A New Framework, Vocabulary and Tool

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Future Internet

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We want to once again thank the reviewers for their time and effort in reviewing our paper.

Reviewer 1:

1. The list of abbreviations is incomplete. Please review it. Furthermore, organize alphabetically this list.

2. I recommend minor improvements in the discussion section to better clarify the contributions of this work considering previous published studies. For me this point is not enough totally clear.

Reply:

1. The only abbreviation used as AI for Artificial Intelligence and this list has been updated to reflect this. Where any abbirivation have been used its followed the convention of its first use is spelt out and in brackets the abbreviation.

2. There is an entire paragraph dedicated to contributions see below:

   We make four contributions: (1) the five-part framework and design language for prompt engineering~\cref{SEC:Formal}, (3) a suite of over 300 terms, developed from several underpinning corpus~\cref{SEC:Vocabulary}, and (2) VisAlchemy implementation that prompts users within the 5-part framework, helping to engineer appropriate prompts, \cref{SEC:Design,SEC:Implementation}, and (4) five usage scenarios that demonstrate how the tool can be applied in different contexts, along with a final discussion of the work, \cref{SEC:CaseStudies}. Our framework, consisting of five stages, helps individuals focus their prompts to appropriate visualisation vocabulary. Additionally, it serves as inspiration for vocabulary selection. Our suite of visualisation ideation terms acts as an aide memoir for developers but also can be used to `roll the dice' in the implementation, further helping creative output. Our implementation tool (VisAlchemy) uses the SDXL model and runs on a local machine. Individuals can input appropriate descriptions through our interface, change the narrative order and weighting. Our design methodology is particularly well-suited for exploring alternative and imaginative visual representations, as well as generating potential design concepts applicable to data art and creative visualisations. The resultant images serve as design inspirations. Selected ideas can be subsequently refined and applied to real-data, ultimately culminating in finalised visualisation solutions. In the context of visualisation, we borrow the term alchemy to emphasise the idea of transformation, synthesis, and creative experimentation. We suggest that designers have the ability to take raw materials, ideas, and influences, and through a process of creative synthesis and refinement, use them to generate something new and valuable.

Reviewer 2:
The authors have taken all comments into account.

Reply:
Thank you for your time in reviewing our paper.