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Editorial

Special issue on diagram aesthetics and layout: Guest editors' introduction ☆

Diagrams are an integral part of many visual languages. For diagrams to be an effective and efficient means of communication and visualisation, a layout often has to be produced from data sets that include little or no geometric information. The resulting layout has significant impact on the ability of users to accurately interpret the information contained in the diagrams. Moreover, the choice of which diagram to use for information visualisation can be substantially influenced by aesthetic qualities, such as line styles and colours. This special issue brings together original contributions on both diagram layout and diagram aesthetics into a single collection, to provide a resource for researchers working in this area.

This special issue contains four papers, selected from ten papers submitted after an open call. The submitted papers were each reviewed by three anonymous reviewers with the top ranked papers that best fitted the theme of the special issue being accepted. The accepted papers cover topics on graphical cues, graph layout, and the aesthetics of visualisations, alongside an invited survey paper on research into diagram aesthetics and layout.

The survey paper, by Helen Purchase, covers 12 years of Diagrams research. Dr Purchase meticulously reviews research presented at the International Conference on the Theory and Application of Diagrams since its inauguration in 2000. This paper demonstrates that, whilst the core topics of interest remain unchanged, there are new and emerging areas in this truly interdisciplinary field. The paper also identifies where disciplines not currently participating in the field might contribute to the diagrams research area.

The second paper in this special issue is entitled "Towards a Systematic Understanding of Graphical Cues in Communication through Statistical Graphs" by Cengiz Acartürk. It presents an experimental investigation into the use of graphical cues, using eye tracking techniques. The results reveal that participants in the study are influenced by graphical cues (such as arrows) as well as the type of graph they are viewing.

The third paper, entitled "Drawing Layered Graphs with Port Constraints" by Schulze et al., presents a layout mechanism, extending work by Sugiyama et al. by including port constraints. The authors show how their layout algorithm can be used to extend established algorithms by including support for port constraints. They demonstrate that their layout algorithm yields results with few edge crossings and bends compared to competing approaches.

The fourth paper is entitled "Preferences for Data Visualization Design of Professionals and Laypeople in Graphic Design", by Quispel and Maes, and focuses on aesthetics. The authors investigate how professionals and laypeople rate aesthetic qualities of visualisations, such as attractiveness and clarity. The results reveal stark differences between these two groups of participants: professional graphic designers rate the attractiveness of non-standard and pictorial visualisations higher than standard and abstract visualisations, whereas the opposite is shown to be true for laypeople. The paper goes on to present results on the clarity of visualisations and preference data.

We would like to thank the Editorial Board of the Journal, especially the Editor in Chief S.K. Chang, for allowing us to organise this special issue. Furthermore, thanks are due to the anonymous reviewers and an international Advisory Board formed for this special issue who assisted with the decisions on which papers to include. All reviewers provided timely and comprehensive reviews of the papers, for which we are grateful. This ensured that only the most appropriate papers have been included and that we have been able to effectively work to a tight schedule, ensuring publication in good time.

In addition, the referees' valuable comments have helped the authors improve the presentation of their papers and, therefore, increased the quality of the papers accepted for inclusion. Finally, we thank all of the authors who submitted papers to this special issue.

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