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Aesthetic Harmony and Epistemic Value in Biomedical Data Visualizations. A Holistic Philosophical Investigation

Summary

This paper aims to show that aesthetics in biomedical data visualizations could be considered as an equal partner to accuracy and clarity, rather than a mere complement. The text first discusses foundational philosophical aesthetics and contemporary theories and practices of visualization, then shifts the focus to an exploration of the interplay between aesthetic harmony and epistemic value in biomedical data visualization. The author proposes a holistic philosophical approach, which suggests that visualizations should be treated as integrated wholes in which aesthetic aspect, function and meaning are inseparable. Biomedical visualisations, such as MRI imaging or epidemiological maps, not only convey information but also build trust and understanding among users. However, technical precision often overshadows aesthetics, hindering uptake and trust. The paper highlights that harmonious designs grounded in neuroaesthetics, cognitive psychology and Gestalt perception theory reduce cognitive load and enhance the quality of decisions. Holistic integrated visualisations combining multiple dimensions of data allow a quick grasp of the clinical situation, but lack universal guidance. Drawing on classical and recent sources from across the humanities, the author calls for interdisciplinary designs that combine beauty, clarity and meaning to achieve maximum epistemological value and societal impact in an era of growing data complexity.

Keywords: biomedicine, aesthetics, data visualisation, philosophy of visualisation, epistemic value, cognitive load.

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