

Feminizing Geovisual Analytics

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Introduction

Geovisual analytics (GVA) is the science of using interactive visual displays to investigate analytical reasoning regarding spatial information (Robinson, 2017). The emphasis on analytical reasoning and insight is what differentiates GVA from its predecessors of digital, interactive cartography and visualisation. While GVA analysts seek to develop methods for solving problems, feminist theorists analyze power differentials (not exclusive to gender) to change them (D'Ignazio and Klein, 2020). In this positioning, GVA and feminist theory have a great potential to co-influence each other with an exchange of ideas and tools. Specifically, I structure this around feminist principles proposed by D'Ignazio and Klein (2016; 2020). Here, I question where GVA currently meets feminist principles and highlight areas that can be improved.

Examine Power and Aspire to Empowerment

Examining and challenging power is one of the central principles of feminist thought that is present within many of the following principles. Examining power requires an analyzing how power works in the world and how we as researchers operate within systems that perpetuate or limit power. The step beyond examining is challenging unequal power structures in how we gather data, how we collaborate, and what we value in GVA. Towards the GVA concern of creating user-friendly interfaces, we should question how potential users are included throughout the design process and the degree of input allowed. Further, how can directly empowering users to give input in earlier stages or be more directly involved in tool creation result in more user-friendly tools? Alongside the emergence of artificial intelligence (AI), examining how understanding how certain unequal power structures are upheld and how power is embedded in the tools we use will define the impact of AI within the field of GVA.

Elevate Emotion and Embodiment

This involves valuing various knowledges to embrace multiple perspectives, from discursive academic theory to knowledge from living, feeling bodies to embrace the perspectives and humanity that go into knowledge. GVA currently engages with embodying various knowledges through user profiles that encourage researchers to embody user perspectives (Rosson and Carroll, 2009), through personal mapping projects that allow users to explore personal experiences and spatial interactions through interfaces (Nelson, 2023) and through the emphasis on domain experts in user

evaluations. The pursuit of analytical reasoning (Robinson, 2017) enables room for exploring the emotions that emerge alongside decision-making with GVA interfaces, informing developers on how affect encourages or discourages use.

Rethink Binaries and Hierarchies

Challenging the gender binary alongside other systems of quantification and classification that perpetuate oppression. Examples of binary thinking include nature/culture or objective/subjective. Kelly (2023) describes existing binaries in map contexts. For GVA, some major binaries could include who may or may not be a user of the interface, or who is or is not a domain expert. As researchers and developers, we use these classifications to define a scope and a target for the interface design but risk reproducing exclusion. Questioning set classifications of a user base by considering *potential* users results can help us think more expansively of user needs and create user-friendly products that can better meet the needs of fringe users (Costanza-Chock, 2020). We should also question the binaries we create within and for our data.

Embrace Pluralism

Pluralism comes from synthesizing multiple perspectives to gain the most complete knowledge rather than seeking an “objective” truth. Here, knowledge is understood as subjective, shaped by the perspective of a specific person's experiences. GVA most adjacently addresses pluralism by engaging domain experts to expand the perspectives of interface input beyond the research team. However, it is important that we critically engage with why certain perspectives are favored over others when recruiting domain experts and users more generally. Pluralism is also crucial for interactive interfaces intended to support decision-making, with GVA being useful for supporting a plurality of understanding for a topic through different user interaction.

Consider Context

For any researcher, it is important to consider the context of the data being used and the context of a research intervention. Here, data should not be considered neutral or objective territory, but as a product of potentially unequal social relations. In doing so, we can conduct more accurate and ethical analyses. Some areas for critical contextualizing in GVA can be messy data and uncertainty. One interesting feminist intervention in GVA has been feminist periscoping, where the gaps in public data are leveraged to reveal more about the systems in which the data exists (Coddington and Williams, 2024). Considering context in this way opens up a new avenue for research that may have pivoted to focus on available data. The iterative process of reflexivity (such as the tools proposed by Kelly and Bosse, 2022) can help researchers mark moments of uncertainty in GVA (Sacha et al., 2016) related to data quality and processing.

Make Labor Visible

Recognizing the labor involved in the creation of data and of subsequent tools is important for valuing the work that gets done and the people that go behind it. Existing provenance efforts that help track the design process through changes made (Camisetty et al., 2019) are a way that labor can at minimum be tracked and made visible within a collaborative setting. As innovation towards agentic AI models progresses, highlighting

where human labor and AI differentiate will be increasingly important in ensuring that humans remain central in decision-making (Andrienko and Andrienko, 2025). Using built-in provenance measures from AI tools alongside contextualizing measures such as reflexivity can help ensure the critical reflection required for responsible AI integration.

Conclusion

Feminist theory can help to expand views on analytical reasoning in GVA through the more systemic and cultural approach towards knowledge formation compared to the pragmatic and cognitive science approach of GVA. Additionally, GVA provides great opportunities to expand the feminist praxis toolbox through the emphasis on knowledge acquisition and different ways to visualize situated and embodied experiences. While I propose a feminizing of GVA here, I ultimately view feminist GVA as a site for conversation between two fields interested in people at the core of decisions.

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