CA Journal of Cultural Analytics

McNulty, Tess, and Laura Alice Chapot. "Computation and Form, Reconsidered." *Journal of Cultural Analytics*, vol. 10, no. 3, Sept. 2025, https://doi.org/10.22148/001c.143993.

ARTICLE

Computation and Form, Reconsidered

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https://doi.org/10.22148/001c.143993

Journal of Cultural Analytics

Vol. 10, Issue 3, 2025

Throughout the twentieth and twenty-first centuries, critics have continually reconsidered the compatibility of computation and the humanities. Often, questions of "form" have played key roles in these conversations. In the 1940s, for example, critics asked whether word-counting might capture "formal units" of poetry like style. By the 2010s, scholars debated with new fervor whether computational methods could—or should—be used to track aesthetic structures like narrative, character, or genre, and especially without eliding rich socio-historical contexts. Today, these debates are by no means over. But they look different after a half decade of new work, and a cascade of theoretical and technical developments—perhaps most prominently, increasing attention to audiovisual materials and the explosion of transformer-based generative AI.

In this special issue, we bring together scholars from across multiple disciplines to reconsider the intersections between computation and form for this emerging technological and critical moment. Together, their work represents a digital humanities in multiple types of transition. The essays collected in this issue refine existing computational critical methods to enable more nuanced and contextualized formal analysis; they apply these methods beyond literary or aesthetic canons to broader ranges of audiovisual, pop-cultural, and technical artifacts, from comics and conspiracy theories to viral TikToks; and they consider prompt-based LLMs, not only as new tools of aesthetic analysis, but also as cultural and technical "forms" in their own right. The articles in this special issue will be published in groups on a rolling basis over the coming weeks.

1. Introduction

Throughout the long history of the digital humanities, practitioners of the field have consistently considered how computation might interact with more traditionally-humanistic practices. Often, concepts of "form" have played key roles in these conversations. In the 1940s, for example, when critics debated the place of computational methods like word-counting in literary criticism, they broached questions of whether word frequencies could capture formal properties in manners compatible with the aims of aesthetic criticism. Could proportions of parts of speech illuminate expressive features like "style" (Miles *Primary 1640s* 12)? Or were single words "too tiny" to constitute "formal units" (Tuve 62)? And was the purpose of literary criticism to consider recurrent linguistic patterns or to address more exceptional poetic properties (Yule; Sledd)? Later on, in the early 2000s and 2010s, similar

debates re-emerged, this time concerning whether "distant reading" belonged in the humanities. Again, scholars reckoned with the relationships between computational and formal analysis, but in manners that reflected their distinct technological and cultural critical moment. Did computational critical methods enact a retrograde "return to form," favoring texts over contexts (Wasielewski 1)? Or might these methods be used to draw out bibliographic and historical subtleties? Could machine learning models capture commonly discussed aesthetic structures like genre or plot? Or could they only track more idiosyncratic patterns—and, if so, compellingly or pointlessly? Was it appropriate, in humanistic criticism, to adopt tools developed across corporate and scientific contexts? Or would doing so only impose the technology's biases, and in manners too black-boxed to enable critique?

Today, these debates are by no means over. But they look different after a half decade of new work and another cascade of technical and theoretical developments. While the idea that computation should play some role in cultural studies is no longer hotly-contested, the specific contours of that role continue to take shape and accrue new types of urgency in the era of generative AI. Computational cultural critics are incorporating rapidly developing methods of prompt-based and multimodal modeling while increasing their attentions to imagistic, videographic, and sonic analysis. Meanwhile, concepts of form and formalism continue to evolve across the broader humanities. In this special issue, we invite critics to reconsider questions of computation and form at this emerging technological and critical moment. Together, these scholars, who work across disciplines from folkloristics to sociolinguistics, represent an area of inquiry that has always been, and continues to become, more capacious and interdisciplinary than the debates of the 2010s had often suggested. Where some of the essays in this issue show how computational approaches can redefine conceptions of textual form or orient formal features in historical contexts, others show how formal analysis can become a powerful method for critiquing computational cultures and logics. Many address pop-cultural or sociologically-urgent sites of analysis, from comics, conspiracy theories, and viral TikToks to the architectures and outputs of generative models themselves. Collectively, these essays suggest that longstanding questions about computation and form continue to animate computational cultural critical work, even as the digital humanities move in newly emerging and unexpected directions.

2. Backstories

This special issue has its origins in an event: an April 2023 workshop at the Neukom Center for Computational Science at Dartmouth College. The event took place at a transitional moment. On the one hand, when the workshop was first planned in the fall of 2022, the dust had just settled on a series of high-profile debates about the place of "distant reading" in the academy. By the time it convened in the spring of 2023, new eddies had

swept up, as ChatGPT's public release launched high-profile conversations about the implications that generative models had for reading, writing, and interpretation. The essays collected in this special issue register and reckon with this point of transition and many discuss the emerging methodological implications of transformer and prompt-based models. What they all have in common, however, is an emphasis that is as much theoretical as it is technological, reflecting how cultural critical theory evolves in conversation with developing tools and technologies. In this sense, these essays belong to a longer tradition of cultural criticism, taking place both within and beyond the digital humanities. Where cultural studies has long reconsidered "its own proper form" through the contestation of the very concept of form (Rooney 21), computational methods have enabled various modes of formalization or model-building. Therefore, where critics have brought computational methods to cultural critical projects, they have often raised questions about form and formalism that have shifted alongside new technologies and theories.

Consider again, for example, the 1940s. During this period, growing numbers of linguists like G. Udny Yule, C.B. Williams, and George Zipf developed methods of quantitative stylistics, largely for the purposes of authorship attribution (Holmes 112). The critic Josephine Miles, meanwhile, strove to adapt these quantitative approaches to literary and poetic criticism (Buurma and Heffernan; Pasanek). When Miles was doing this work, New Critical approaches to "close reading" were also ascendant, treating the poetic text as "an autonomous, unified, and organic body whose individual parts existed in a pristine balance with one another and independent of the world at large" (Rovee 406). Miles' method interacted with New Critical formalism in complex and diverging ways. On the one hand, Miles was, in her own way, a formalist, someone who computed relative quantities of parts of speech to home in on the "forms and proportions of poetic language" (*Primary 1740s* 162). And yet, if Miles was a "rogue formalist" (406)—as Christopher Rovee has put it—then it was partly because her structural interpretations sometimes defied prevailing New Critical emphases on autonomy and unity. Her quantifying methods, as she argued, allowed her to orient individual poems in relation to "strands of context" (*Poetry* 90), showing how individual poets, though unique in their styles, also deployed the "common poetic material of their time" (*Primary 1640s* 2). As she put it: "every poem is poetically typical and social as well as individual" (*Primary 1640s* 4).

A few decades later, from the 1970s to the 1990s, computational critics began to draw on advances in mainframe and personal computing to pursue projects of quantitative stylistics, while also turning to other computational humanistic endeavors, like the development of systems of humanistic text encoding (Hockey). At the same time, these critics worked amidst an increasingly poststructuralist critical environment, in which many scholars rejected constraining, totalizing, and hermetic theorizations of literary form in

favor of expanded conceptions of texts as interactive, contested, and socially embedded (Gius and Jacke 2–3; 12-13). Rather than strive to justify how their methods captured "formal units," therefore, these computational critics instead often worried about engaging in a "lateral extension of Formalism, New Criticism, or Structuralism" (Smith qtd. in Rommel). They attempted to adapt the formalizing and quantifying processes of computation to evolving critical theories and methodologies. In a 1993/1994 special issue of the journal *Computers and the Humanities*, one cohort of computational critics argued that methods of computational stylistics, though traditionally used for authorship attribution, were also well-suited to various types of critical projects post-dating the "death of the author." In one essay, Mark Olsen argued that computational approaches, rather than capturing the complexity of single authors' quirks, were better suited to address "intertextual" patterns that persisted across socially embedded sign systems (309-312). In another, Ellen Spolsky argued that quantitative approaches could capture individual writerly styles in manners that could inform feminism's attempts to develop a mode of writing that could challenge masculinist paradigms (325-326).

By the 2000s and 2010s, new technical and cultural developments—from the increasing availability and adaptability of both personal and high-performance computing to the expansion of digitized material—helped draw computational cultural criticism from the margins to the center of humanistic conversations. Again, the field adopted updated methods, like machine learning, while addressing revised critical conceptions of form. While "New Formalists" advocated for a return to the analysis of form, they did so in a way that absorbed the contextualizing tendencies of recent New Historicisms. "Activist formalists," for example, insisted on the manners in which textual forms were embedded in social and historical contexts (Levinson 559). Some New Formalists also channeled poststructuralism's capacious ambitions. By redefining form expansively—as any patterning, shaping, or organizing principle (Levine 3, Mitchell 322)—critics like Caroline Levine and Ellen Rooney argued that formalist methods could be applied to a range of not only literary and aesthetic, but also social, institutional, and political phenomena (Rooney 26; Levine 14). Meanwhile, new materialists and affect theorists eschewed attention to symbolic, textual structures in favor of considerations of more material, bodily, or affective forces. Film critical affect theorists, in particular, often resisted the imposition of traditionally literary-critical conceptions of form onto other analytic spheres (Brinkema). Where digital humanists felt tasked with proving their methods' relevance to traditional literary and art-critical disciplines, they often focused—in the vein of much New Formalist work—on computational methods' abilities to capture textual structures like character, plot, style, and genre (Piper; Underwood; Long and So). At the same time, critics both internal and external to the field were carefully attuned to dangers of either aestheticism or hermeticism. Many critics made influential cases for versions

of computational cultural criticism that were sensitive to bibliographic and historical contexts or pursued politically or socially engaged projects (Benjamin; Bode; D'Ignazio and Klein). These critics often addressed both the historically and contextually embedded biases of machine learning processes (Noble) as well as the formal logics of computational culture more broadly (McPherson).

Today, the digital humanities are entering a new phase. As the field continues to consolidate, develop, and diversify, debates about its very existence give way to questions about its future contours. Practitioners embrace expanding approaches of "distant viewing" and "distant listening" (Tilton and Arnold; Clement) while reckoning with the cultural and methodological implications of generative AI. The concept of form remains a touchstone. In her 2023 book *Computational Formalism*, for example, Amanda Wasielewski considers how digital humanistic debates about form and formalism translate into the arena of computational art history. In his 2021 essay "Spec Acts: Reading Form in Recurrent Neural Networks" Matthew Kirschenbaum argues, with reference to generative models, that "Recurrent Neural Nets...are agents or entities that are as close to pure form as we are ever likely to encounter... resist[ing] and rebuff[ing] our standard materialist and social constructivist means of attack" (364). Many others are beginning to consider how newly developing prompt-based or multimodal methods can refine existing computational work on categories like narrative or genre (Bamman et al.; Antoniak et al.) while also bringing humanistic perspectives to bear on these new technologies and their social, cultural, and analytical ramifications (Klein et al.). Still, a collective discussion has yet to emerge reconsidering the place of form in the changing field.

3. Strands

What roles, then, do form and formalism play in today's digital humanities? The essays in this collection provide a collective response to that question, carrying forward but also recasting prior conversations around form and computation. Together, they suggest three overlapping strands of development, each reflecting some broader currents taking shape across the field.

A first strand reflects the digital humanities' increasing theoretical maturity and interdisciplinarity. While building on prior conversations about whether computational methods can capture forms like genre, character, or style, these essays instead consider how computational modeling can uncover distinctive types of textual or even extratextual features which can compel re-theorizations of textual form. Is plot, for example, driven by characters and events? Or could emotion also be a defining feature of what holds stories together? In an essay that addresses these questions, Katherine Elkins reconsiders the concept of narrative through the lens of sentiment analysis, arguing that stories are shaped by "emotional arcs." She traces these arcs

through a broad range of cultural contexts, from Virginia Woolf's *To the Lighthouse* and ABC's *Shark Tank* to collective conversations on the platform formerly called Twitter (now X). Lauren Tilton and Justin Wigard, meanwhile, consider strains of research that bring computer vision to the analysis of visual media, like TV sitcoms, photography, and comics. They argue that computer vision's processes, despite their formalizing tendencies, can be creatively "misused" to draw out cultural artifacts' historical and social contexts.

A second strand of essays points to the continually expanding political and social relevance of computational critical work. Essays belonging to this strand bring methods of computational and formal analysis to a wide range of pop-cultural and sociological phenomena. For example, one group of eight authors—Alexandre Miller, Jasmin Kongsberg, Dominic Stephenson, Chandini Dialani, Megan X. Leng, Olivia Kris, Pavan Holur, and Timothy R. Tangherlini—uses narrative framework theories from folkloristics to analyze the conversations taking place on the social media platform Parler during the period leading up to the January 6th insurrection. They trace the spread, circulation, and development of collective stories across millions of aggregated posts, showing how narratives about threat and conspiracy incubated real-world action. Tess McNulty, meanwhile, considers the complications that emerge when bringing "generalizing" cultural critical methods to the analysis of highly popular social media content. She uses viral prank videos as a case study, showing how these videos reflect broader patterns across top-creator content on TikTok and YouTube. Similarly, in a paper delivered at the 2023 workshop, Suzanne Mpouli brought methods adapted from computational sociolinguistics to the analysis of a corpus of Hollywood romantic movie scripts. Her work shows how theories of communication and identity, combined with methods of keyword analysis, can illuminate unexpected aspects of these films' portrayals of gendered self-expression.

Finally, a third strand engages directly with generative AI, reflecting the varying ways in which this increasingly pervasive technology might enable or invite formal analysis. While multiple essays across the special issue address the use of LLMs and prompt-based models as methods of cultural analysis (see, for example, Elkins, and Tilton and Wigard), essays in this third strand treat these models as objects of formal analysis in themselves. James E. Dobson focuses on these models' internal architectures. Working against notions that machine learning models are purely formal or ahistorical, Dobson instead shows how specific historical, social, and contextual features become embedded in almost every phase of these models' development and training. Rather than elide the distinctions between varying types of neural nets or transformer architectures, he makes the case for addressing these models individually and in detail. Ryan Heuser, meanwhile, focuses on the formal and aesthetic features of generative models' textual outputs. Through

considerations of the "formal stuckness" of chatbot-generated poetry, he exposes the rigid and flattening logics that such models might bring to both the composition and conceptualization of literary and aesthetic texts.

Many other currents flow across these contributions, constellating their discussions into different configurations. Together, these essays tell a story less of consensus than of expansion and experimentation. Form continues to drive conversations throughout computational cultural criticism across multiplying disciplinary, theoretical, and technical contexts. Rather than coalescing into any single program or manifesto, these essays reflect a field in transition and point to its emerging directions.

Acknowledgements

The special issue editors would like to express their gratitude to the general editors and editorial assistants of *Cultural Analytics*, for the time and energy that they put in to guiding the issue through its various stages — Andrew Piper for accepting the proposal and managing earlier phases, and Tanya Clement, Meredith Martin, and Amelia Acker for then carrying the issue through the subsequent publication process. Thank you also to the Neukom Institute for Computational Science at Dartmouth College for funding and supporting the workshop from which this issue emerged, and especially to Dan Rockmore and Christine Ellen for their assistance through that process. And thank you to our contributors and reviewers for making this issue possible.

Published: September 10, 2025 EDT.

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