TRANS*FORMATIVE TECHNOCRAFT

by

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A Dissertation Presented to the
FACULTY OF THE USC GRADUATE SCHOOL
UNIVERSITY OF SOUTHERN CALIFORNIA
In Partial Fulfillment of the
Requirements for the Degree
DOCTOR OF PHILOSOPHY
CINEMATIC ARTS (MEDIA ARTS AND PRACTICE)

May 2024

Table of Contents

List of Figures

0.1 Abstract

This dissertation argues for creative, practice-based, community-driven approaches to critical AI.

A large interdisciplinary community is pushing for understanding, critiquing, and rethinking how we define, develop, deploy, regulate, use, and mitigate the effects of machine learning tasks, datasets, models, algorithms, architectures, and agents, which we collectively and nebulously understand as 'AI' systems. Critical AI includes critical analysis of the pitfalls of existing methods and calls for applying alternative indigenous, feminist, queer, crip, and intersectional approaches. Critical AI is distinguished from applied approaches like 'AI for Good' or 'AI for Society', which can lack critical perspectives despite their intended altruism. Yet, Critical AI as a set of mixed methods of analysis and intervention has yet to be adopted into standard machine learning practices, even as the use and awareness of AI escalates.

*Trans*formative TechnoCraft* demonstrates that implementing critical AI approaches into AI more broadly requires building more inviting, inclusive, playful communities — where a wider range of individuals can engage critically and creatively with each other and with machine learning techniques as malleable materials. The dissertation argues for building critical–creative coding communities as radical spaces of belonging — activated by a politics, way of being, and ethos of co-creation modeled by queer and trans* communities that embrace radical difference. This creates a basis for the deep interdisciplinary thought, the interrogation of formative principles, and openness to alternative forms that are necessary to reimagine the AI status quo.

Critical–creative coding is the term I use to describe combining creative coding (existing artistic approaches to software and their surrounding communities) with applied critical approaches. Like 'tactical media' and 'critical engineering' before it, critical–creative coding creates software and other technological objects in order to investigate them as objects of study and critique. It also emphasizes the process-, community-, and material-focused aspects of creative practice by looking to crafting and the arts. Critical methods activate creative modes and root them in sociotechnical

complexity. Creative methods in turn activate critical modes and root them in care and connection, taking the critical out of the abstract and into action. This is not a binary but a blending that is needed to address AI's urgent concerns.

The emphasis on craft and creativity is not exclusively aesthetic but also strategic. By reframing cutting-edge technologies through the lens of crafting practices like woodworking or fiber arts, coders can recast their relationships to what they create — deflating AI hype, lowering the barriers for learning, emphasizing sustainably and community. Thinking craft-as-technology honors the inherited knowledge of many outsider communities; as thinking technology-as-craft provides a framework to implement their theories, ethics, and tactics as intersectional critical AI.

*Trans*formative TechnoCraft* collects four publications that enact the strategies it theorizes. Because different modalities can better address and unite a wider range of communities, these works make interventions with different audiences by relying upon different voices, forms, formats, and media to address different stages of the sociotechnical pipelines that produce algorithmic systems like generative AI.

"A Critical Field Guide for Working with Machine Learning Datasets" offers practical guidance for conscientious dataset stewardship. It combines critical AI theories and technical data science concepts, explained in accessible language. It addresses journalists, students, scholars, activists, artists, and anyone starting to work with existing machine learning datasets, in the form of an instructional guidebook that combines approachable techniques with critical thinking questions, at the point when they are choosing, using, and maintaining datasets as the foundation for machine learning tasks. It is paired with the "Inclusive Datasets Research Guide," an online resource written for USC Libraries, which addresses a diverse student population who are also beginning to work with datasets.

Both of these texts apply concepts from the "Intersectional AI Toolkit," which argues that anyone should be able to understand what AI is and help shape what AI ought to be. The Toolkit's

co-authored zines are accessible guides to both AI and intersectionality. They find common vocabularies to connect diverse communities around AI's urgent questions. Its online resources learn from legacies of queer, feminist, antiracist, anticolonialist, and antiablest theories, ethics, and tactics, showing how established but marginalized tactics are necessary for reimagining more critical and ethical machine learning. The Toolkit addresses anyone who wants to understand the automated systems that impact them by using public workshops, zines, and digital resources in order to describe key concepts and processes of machine learning through critical lenses.

"Coding.Care: Field Notes for Making Friends with Code" describes critical–creative programming approaches founded in the belief that anyone can contribute to the future of digital systems and that we all have skills to teach each other. It gives courage to pick up unfamiliar tools, find resources to kick off a new programming project, pose questions critically, or solve problems creatively. It asks: How do we code with more care? How do we encode more care into our lives? How are these connected? It supports building or joining cooperative, interdisciplinary communities for co-learning coding. "Coding.Care" addresses reluctant or would-be programmers (of any age) and and potential group leaders, with a warm and friendly pocket guide, at the moment where they might intervene with critical or imaginative software creation.

As interstices among these three texts, a collection of five short lyric essays imagine dialogues with five 20th century artists, asking how the artists' analog material practices might act as pre-responses to the contemporary digital concerns raised across *Trans*formative Technocraft.* "Codes for (Un)Raveling," "Codes for (Un)Limiting,"Codes for (Un)Forming," "Codes for (Un)Living," and "Codes for (Un)Knowing" approach the lived experience of an algorithmic era from oblique angles. Unlike the other texts, the tone of the "Codes" essays addresses nonpractitioners on a more affective, aesthetic register, meant for reflection on the impact of sociotechnical systems as they entangle with individuals and marginalized groups.

Together, the works that make up *Trans*formative TechnoCraft* are meant to meet readers where they are — non-academics or perhaps coming from another field, looking for a common vocabulary to engage conscientiously with the seen and unseen concerns of AI systems. Because the project as a whole emphasizes the need for open, inclusive communities, it enacts its argument through its creation processes: using open-access, multi-modal, iterative publication rather than emphasizing a single, authoritative, final product. It is intended as an expansive invitation to [deepen interdisciplinary conversation, apply intersectional approaches, and][XXX].

0.1.1 Keywords

artificial intelligence, artistic research, craft, critical AI, community building, datasets, machine learning, practice-based, trans, queer, zines