

## The Humans and Algorithms of Music Recommendation: A Review of *Computing Taste* (2022)

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### Abstract

In *Computing Taste*, Nick Seaver conducts an anthropological study of the technologists who design algorithmic music recommendation systems. He explores their ways of thinking and talking about music, taste, and computation to better understand their technological design approaches. By highlighting the humans behind the machines, *Computing Taste* shows how to think about computer algorithms as sociotechnical systems.

### Introduction

Streaming services such as Spotify have changed the way that many (if not most) people listen to music. Those services do much more than just provide access to massive searchable libraries; they actively shape what users listen to via their recommendation systems. Music recommendation comes in many forms, from basic suggestions to playlists to personalized “radio stations,” all of which now rely on algorithmic computing technologies. Much has been written about how those technologies have transformed the media landscape and have created significant issues for users [e.g., [Gaw 2022]; [Pajkovic 2022]] as well as creators [e.g., [Giblin and Doctorow 2022]]. Seaver’s *Computing Taste* [Seaver 2022] lies within those conversations, but approaches the space from a different angle. Rather than offer yet another social critique of the modern state of algorithmic recommendation, Seaver focuses on the designers of those technological systems. 1

*Computing Taste* is an anthropological study, based on field work that Seaver conducted over several years in the early 2010s. He spent time within a company he calls “Whisper” and conducted interviews with a wide variety of technologists across the industry. Seaver’s aim is not primarily technology criticism (though he does offer critiques) but rather to illuminate the cultural practices of those who design recommendation technologies. What do the designers aim to accomplish through their work? How do they understand music? And perhaps most centrally, how do they think about taste? *Computing Taste* reveals that the answers to those questions are anything but simple. 2

This book is about those humans — people who occupy a paradoxical position within algorithmic systems and in discourse about them. Although they are often figured as unfeeling agents of rationality, they describe themselves as motivated by a deep care for music. Like many of their critics, the makers of music recommendation recognize that there is something strange about their aspirations — a tension between the closed, formal rationality of technology and the open, contingent subjectivity of taste. [Seaver 2022, 8] 3

Given the abundance of scholarship that examines and critiques algorithmic recommendation systems, what does Seaver’s anthropological approach offer? When analyzing these technologies, there is a tendency to either overlook the designers entirely or to flatten them into simple caricatures. *Computing Taste* challenges such perspectives by providing a far more complex portrait — one that Seaver did not necessarily anticipate from the outset. 4

I came to Whisper looking to understand how people like Ed and his colleagues thought about 5

taste... I assumed that theories of taste would map neatly on to techniques and data sources: if you thought that people liked music because of how it sounded, then you'd make a system that analyzed audio data; if you thought they liked music to fit in with their friends, then you might try to acquire social network data... But what I found at Whisper, and across the industry, was not so straightforward. [Seaver 2022, xiii]

## Major Themes

Each of the six chapters of the book examines a facet of how the designers of music recommendation systems think about music, taste, and the computational systems they develop. Chapter topics include the need to assist users in navigating “too much music,” the capture of users’ attention, the mathematical nature of music, and the “space” of musical genres. Each chapter begins with an illustration of each theme that draws from Seaver’s field work, followed by extended analysis and interpretation that leverage constructs and insights from a broad body of humanities scholarship. For example, in Chapter 1 he connects the origins of music recommendation in the mid-20th century to contemporaneous developments in computing, particularly the emergence of Cybernetics. In Chapter 5 he compares the ways that technologists conceptualize the “space” of music genres to anthropological and sociological theories of cultural spaces (such as those of Bourdieu). A theoretical thread that runs throughout the book is the insight from Technology Studies that we ought to think of technologies as sociotechnical systems: assemblages of human and technical components [Pinch and Bijker 1984]. Talk of “computer algorithms” too often obscures the human actors that not only design the technical components but actively and continuously manage and maintain them.

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All six chapters bring insights, but several are particularly worth highlighting. The first two chapters provide a careful and novel analysis on the tensions that exist in how designers think about the “captivating algorithms” that they create. In Chapter 1, Seaver describes how recommendation systems are often positioned as assisting audiophiles navigate the overwhelming catalog of music that they can access. The concern that humans are practically drowning in a sea of information (musical or otherwise) is, as Seaver points out, a perennial one, and he traces the development of music recommendation services, since the early 1990s, that have sought to help users navigate the problem of “too much music.” Contemporary algorithmic methods are largely continuous with their predecessors, though their technical methods differ. Their designers employ similar rhetoric about the goal of helping users navigate a bewildering array of options. The enduring promise is that recommendation systems will help users not only find the music they already like, but discover new music that they never would have otherwise encountered.

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Yet for all the rhetoric about helping users navigate and make new discoveries, there is also a discourse about using algorithms to get users “hooked” on the music service. This is not the algorithm of musical discovery, but the “captivating algorithm” of the attention economy. Much, of course, has been written on the subject of attention-capturing algorithms [e.g., [Zuboff 2019]], and Seaver acknowledges and discusses that work. But rather than critique the social consequences of the algorithms, Seaver works to understand how their designers square their captivating function with their goal of empowering users to explore the vast “musical landscape” (Chapter 5 specifically addresses spatial metaphors of music).

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In Chapter 2, Seaver uses anthropological studies of traps as a lens to interpret how designers approach the task of captivation (building on work that he previously published in 2019). The key insight is that the designer needs a model of that-which-is-to-be-trapped, because the trap needs to be able to lure its intended, and only its intended, prey. This is why designers of recommendation algorithms need to model their users, including the different kinds of users that might exist. The trap metaphor is also instructive because it draws attention to the array of traps that can be made. A trap need not kill or even injure or even extensively confine its prey. In fact, recommendation algorithms might be best conceptualized as the “pastoral” form of trap:

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Pastoral enclosure is a kind of nonlethal, ongoing relationship aimed at growing the number of creatures enclosed through the careful social organization of animal and environment... Like reindeer pastoralists, the makers of recommender systems do not want to annihilate their prey. They want to keep them around and grow their numbers, through the artful production of captivating

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environments that at once limit and facilitate life. [Seaver 2022, 71]

From this perspective, the algorithmic trapper/designer is not a jailer working to constrain human autonomy, but a persuader trying to coax music listeners to “hang around” [Seaver 2022, 50]. So, if you want users to hang around, do you give them what is familiar, or try to broaden their horizons? Perhaps some users are content to just stay in familiar territory while others actively want to discover new music. Building the right pastoral enclosure means that designers need to model those different user orientations – the subject of Chapter 3.

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This brief overview illustrates the approach that Seaver takes throughout *Computing Taste*. He draws connections between how the technologies are designed, the designers’ beliefs and intentions, and humanities perspectives that provide insight into how the pieces fit together. He does not hesitate to critique the technologists’ perspectives and beliefs when critique is warranted, drawing attention to inconsistencies, blind spots, and misguided assumptions. At the same time, he does not set the designers up as antagonists (like, say, [Rushkoff 2022]). Rather, Seaver creates a portrayal of earnest people who are passionate about music and who believe wholeheartedly in the value of their work. *Computing Taste* shows how those technologists use their beliefs to navigate the challenges and complications of their technical projects. And while they may often be naïve about the social effects of the technologies they create, the way that they think about their work is anything but simplistic or cynical.

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## Contributions to Digital Humanities

The domain of music brings its own peculiarities, but *Computing Taste* offers many tools and insights that are useful for digital humanities scholarship more broadly, especially for inquiries into now-ubiquitous algorithmic systems. Perhaps the most wide-reaching contribution is its call to take seriously the beliefs, ways of thinking, and ways of talking (including the metaphors) of technology designers. Those ways of thinking and speaking matter a great deal because they wind up being knitted into the technical systems they create. And yes, they are worthy of scrutiny and critique, but they are also worthy of being understood. As Seaver shows, they are often far more complex than they at first appear.

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Exemplifying this point is Seaver’s examination (in Chapter 4) of the use of machine learning to create systems that can detect musical genre. Machine learning systems are often described as “black boxes” because it is extremely difficult to comprehend why they produce the classifications (e.g., genre) that they do. And yet, Seaver’s analysis reveals how machine learning remains a sociotechnical system. Human designers decide not only what to feed into the machine learning algorithm, but “tune” its outputs so that they conform to their expectations. The ways that the designers think about genre and hear music become intertwined with the algorithm. They use their ways of thinking and listening to detect, interpret, and correct unexpected results. The designers are also “tuned” by their technologies as they strain to listen for and comprehend what the algorithm is “hearing.”

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Careful considerations of the complex and ongoing interactions between technology and designer need to be central to our analyses and critiques of algorithmic systems (machine learning or otherwise). Those systems are shaped and continuously maintained by the beliefs, approaches, and discourses of the technologists who develop them. A deeper understanding of those designers’ cultures can not only enrich our analyses and critiques, but also point the way toward alternative futures. What kinds of music streaming services might we have if they were built up from a different set of beliefs and metaphors about music, taste, and computing?

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