

CHAPTER 2

FREEFORM RADIO AND THE HISTORY OF MUSIC STREAMING

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INTRODUCTION

AROUND 1989, Brian Redman, a software engineer at Bellcore, set up a computer-controlled telephone switch enabling listeners to call in long distance to listen to WFMU, a radio station of Upsala College, a private Lutheran school in East Orange, New Jersey. At the time, the station had already adopted an across-the-board freeform format: “No one ever says a word about what we play,” WFMU disc jockey (DJ) James Marshall, a.k.a. “The Hound,” told a reporter in 1989 (Gioia 1989). Marshall specialized in obscure R&B and hillbilly records issued before 1965. Redman loved *The Hound Show* and was a fan of the station. “I pretty much listened to whatever was on when I wasn’t doing other things that needed my ears,” he remembers (Redman 2021).

Bellcore, a Bell Labs spin-off created after AT&T broke up in 1982, provided the necessary equipment for the phone-in music broadcasting and paid for the phone line, in accordance with its mission for open-ended exploratory research (Gertner 2014; Wershler, Emerson, and Parikka 2022). One day, the connection broke down, bringing angry phone calls from as far as Chicago, Seattle, San Francisco, and Los Angeles. “It blew my mind,” WFMU station manager Ken Freedman recalls. “We had no idea that people had been listening regularly, every day or every week to a certain program and got used to it.” Freedman remembered these vexed fans four years later when he read in *Wired* that the internet would soon support audio files. From then on, WFMU jumped at every opportunity to expand its reach online. In 1994, another volunteer, computer musician Henry Lowengard, put the station’s schedules and downloadable audio files on Gopher, a pre-web searchable file network. Its site was linked to the ECHO (East Coast Hangout)

Bulletin Board System (BBS), a computer server for sharing messages and files. Several months later, WFMU ported these materials to its first website (Freedman 2013, 2022).

Several other like-minded early experiments anticipated online sharing of music, in the 2020s experienced via music streaming platforms and apps. In 1991, the Museum inside the Telephone Network allowed visitors to connect to the Japanese Nippon Telegraph and Telephone system from home via phone, fax, or a rudimentary pre-internet computer connection and see, read, hear, and interact with works by dozens of cartoonists, writers, philosophers, and musicians from Japan and around the world, including recorded short music pieces by avant-gardists John Zorn, Steve Reich, and Laurie Anderson. Four years later, the museum moved its exhibitions onto the web (InterCommunication '91 1992). In 1993, two students from the University of California, Santa Cruz, Rob Lord and Jeff Patterson, posted MP2 files on Usenet, a distributed online discussion network, to promote their own and other underground bands and got responses from as far away as Turkey and Russia. A few months later, they launched the Internet Underground Music Archive on the web (Haring 2000). In the pre-web “modem world” era, these experiments presented songs for download via BBS and Gopher and for on-demand remote algorithmic streaming via the telephone. They represent an evolution of radio broadcasting that is usually attributed to later eras of RealAudio, Napster, and Spotify (Borland and Mansfeld 1991; Driscoll 2022; Morris 2015; Bottomley 2020).

These music-sharing ventures invite us to rethink the cause-and-effect relationship between *soundwork*, to use a term introduced by Michele Hilmes, and digital technologies (Hilmes 2020). Observers usually ask, How did new technologies transform audio genres or broadcast formats? The Bellcore telephone switch, the Telephone Museum, and the Internet Underground Music Archive did not create new genres or formats, however. Rather, they extended existing distribution channels for specific sonic cultures. For Patterson, for example, his online MP2 files on the Internet Underground Music Archive assisted the international snail-mail cassette exchange: “Some guy in Turkey has my demo tape and I didn’t have to do anything to get it to him” (quoted in Haring 2000, 36). For this early period, it is worth posing different questions. What soundwork—music genres and radio formats, as well as their underlying social networks and philosophies—drove the adoption of new technologies? What usable past do these social visions hold for today’s world of online music dominated by streaming platforms?

The first automation projects at commercial radio stations, as Andy Stuhl (2022) shows, mechanized what employees were already doing—stitching songs and ads together—thus amplifying the advertising value of broadcasting. Conversely, the three pre-web audio-sharing experiments discussed above distributed avant-garde compositions, underground songs, and freeform shows via ad-free channels. By no means divorced from the music and communication industries, they nevertheless extended distribution routes that lie outside the main industry circuits. They present a counterpoint to the corporate platform trajectory for online music that seems omnipresent in the 2020s.

In this chapter, I focus on freeform radio. I ask, What was it about freeform as an art form that drove the early adoption of online technologies? First, I discuss the drawbacks of the current media studies research agenda focused on streaming platforms at the expense of alternatives. I then turn to the history of freeform radio and its contested visions of the craft, beyond the basic definition of DJs playing any tracks they want, in commercial, community, and college radio. And finally, I will use WFMU and its creative networks as a case study. FMU's militant commitment to antiformal broadcasting attracted multiple radio publics, including fans, volunteers, and cultural allies, and enmeshed the station in diverse networks: of New York art and music scenes, national zines, and international tape exchange routes. These freeform publics drove innovations that produced some of the earliest examples of online music sharing.

PLATFORM STUDIES WITHOUT ALTERNATIVES

Because music streaming platforms are ubiquitous in the 2020s, the media studies community has thrown its energies into exploring why and how they became successful. Important studies analyze their predatory business strategies (Eriksson et al. 2018), their exploitative royalty rates (Hesmondhalgh 2021), their software developers' synoptic views of world music (Seaver 2021), and their construction of commodity audiences (Morris 2018). For each groundbreaking study, a dozen others plow the same ground, spurred by government grants, corporate funders like Microsoft and Xerox, and universities trumpeting their relevance to the business world. This platform turn in media and sound studies has eclipsed previous scholarly preoccupation with alternatives to corporate centralization. At the turn of the twenty-first century, the Free and Open Source Software movement was at its height, advocating for commons-based alternatives to neoliberal economic models (Benkler 2006; Kelty 2008). While the movement was in the news, sharing and collaboration were the concepts of the day. When Spotify rose in prominence, most researchers turned to platform studies.

Yet the open source era's gains are still with us, in radio as well. Creative Commons copyright and open-source software still supports community broadcasting (Correia, Vieira, and Aparicio 2019). Online open culture institutions Internet Archive and UbuWeb make publicly available millions of historical sound art files, including radio (Goldsmith 2020; Morris 2020). This article would have been impossible without online radio archives set up according to open-access principles, such as the WBAI hacker show *The Fifth Corner* collection, Brian Redman's fan web collection of the Hound's broadcasts, and WFMU's own archive that includes shows going back to 1968.¹ Listener-supported radio survived through the pandemic, aided by the internet, as DJs broadcast from remote locations and emailed prerecorded shows to college and community stations (Sokol 2020). These stations streamed online as well as over the airwaves.

Without factoring in this off-center trajectory for online music, its history is written by the victors of the moment. Scholars assume the dominant platforms' point of view of what is important in radio's and the internet's past. In a white paper on music recommendation, Georgina Born, Jeremy Morris, and others call for "alternative design philosophies" and "a more diverse institutional ecology supporting AI-based curation and recommendation" (Born et al. 2021, 21). One cannot come up with alternatives by only studying the mainstream. New work on early internet history provides such an alternative perspective. Countering narratives of corporate innovation, Joy Rankin (2018) shows how, in the 1960s and 1970s, teachers and students built computer time-sharing networks to form and extend interpersonal communities, a movement she calls "computer citizenship." Kevin Driscoll (2022) proposes BBS discussion boards as an egalitarian and participatory counterpoint to contemporary social media platforms. These scholars demonstrate that technological breakthroughs cannot be separated from the social circuits they emerged from and were meant to serve. Soundwork merits an alternative, antiplatform history as well. Because of their commitment to sonic diversity, freeform DJs participated in multiple social circuits for independent music. Looking at early streaming experiments in relation to these social circuits helps us to envision philosophies and institutions for the present.

FREEFORM RADIO: SONIC DIVERSITY AGAINST COMMERCIAL FORMATS

Various origin narratives disagree about the beginnings of freeform radio.² Practitioners stress community connection and ad-free broadcasting, tracing the first program as far back as 1949 on the first Pacifica Radio listener-supported station KPFA in Berkeley, California (Freedman 2007). Business histories focus on entrepreneurs like Tom Donahue at KMPX in San Francisco, who ported the style to commercial stations in the late 1960s in opposition to the Top 40 preset playlist format (Donahue 1967; Crider 2020). The Federal Communications Commission spurred commercial adoption of freeform by requiring that radio stations' FM outlets broadcast content different from that on their AM outlets. Freeform style gave DJs authority to combine multiple music genres, sound collages, comedy, and audience participation (Fisher 2007). Although they incorporated other music, freeform DJs played mostly progressive rock, a genre alternatively celebrated as an underground practice and critiqued as white male elitism (Weisbard 2014, 200–201). By the mid-1970s the format declined on commercial radio, from three hundred stations to barely more than twenty (Fornatale and Mills 1980, 142). To advertisers, the former freeform stations mattered mostly because they morphed into the marketable album-oriented rock format (Simpson 2011). From the radio industry's perspective, freeform practice fizzled out together with 1960s counterculture.

In college radio, freeform broadcasting continued to evolve. Students ran these stations, sometimes with the help of a faculty advisor. University administrators provided facilities and all or part of the budget, often supplemented by fundraising marathons. In the late 1970s and 1980s, some college stations served as campus public address systems or became affiliated with National Public Radio. Among the remaining five hundred to six hundred college stations, many used open format hours, especially in overnight slots, interspersed with blocks of “specialty” shows dedicated to a single genre, such as reggae, classical, or jazz, as well as news and public affairs programming (Jewell 2023).

In practice, the freeform approach varied. Some took their freedom as a license to imitate commercial formats. One DJ played mostly album-oriented rock tracks on his freeform show at KLXU, Loyola Marymount University, forcing the management to move him from the FM to the AM outlet on the station (Pond 1983, 86). For others, such as Dave Downey at KUSF, University of San Francisco, open format meant a gamut from hard rock to post-punk, “Van Halen into the Sex Pistols into Southern Death Cult” (Pond 1983, 86). DJs like Downey rejected pop songs and the commercial radio stations that played them. They promoted alternative music, including R.E.M., U2, and Talking Heads, and aired live sets by underground local and visiting bands. As the music industry turned to college radio in the mid-1980s as a place to “break” new bands, alternative rock became a genre of its own and DJs got access to promo records from major labels and established indies (Pond 1983; Schoemer and Carroll 1990; Lam 1988, 2). In response, many college stations gave up freeform for an alternative format that required DJs to play a set share of music from small, independent labels unaffiliated with the majors (Meyer 1985; Uskovich 2011, 180–181; Waits 2008, 84).

For some college stations and DJs, freeform had a more specific meaning: a radically eclectic approach to sound. These DJs went beyond promoting alternative bands in defiance of commercial radio. In the 1980s, they combined tracks from an unprecedented variety of genres, including punk, new wave, electronic, ska, reggae, jazz, blues, R&B, avant-garde, and world beat. KUSF at the University of San Francisco aired “the Beatles and the Beach Boys, Ultravox and UB 40, the Supremes, the Ronettes, and Bob Marley and the Wailers, all on one station, even all in one hour” (Sullivan 1980). “We try to play at least four distinct types of music every hour to expose our listeners to a wide variety of music styles,” explained one student at KALX at the University of California, Berkeley (Matzek 1983, 3). They did not see Top 40 as the enemy, because, as *CMJ* editor Mark Glaser (1990, 49) put it, “Top 40 would play the hits regardless of category. If it was popular, so be it.” They could play the same record all day: on November 5, 1980, the day after Ronald Reagan was elected, WCBN at University of Michigan, Ann Arbor, played Lesley Gore’s 1963 single “It’s My Party (and I’ll Cry If I Want To)” for twenty-four hours, occasionally varying the playback speed (Kramer 1981, 1). They delved into music history. WXYC at the University of North Carolina at Chapel Hill segued from “Billie Holiday to Hüsker Dü” (DeCurtis 1986). They incorporated environmental sounds: WCBN broadcast crickets chirping for two and a half hours (Kramer 1981, 1). These DJs

conceived of their stations' entire audio stream as a work of art, where, according to one observer, even specialty programs functioned, "in a way, like magnifications of individual particles of a freeform show" (Kramer 1981, 8).

Students' and universities' needs chipped away at the eclectic freeform practice. These needs went beyond restrictions on playing major labels at alternative stations. At ad-supported college stations, administrators introduced "continuity" programming, based on preapproved playlists (Jewell 2022). Community volunteers enhanced music programming with their personal record collections, but students or administrators concerned with professional training could oppose their participation (Wallace 2008; Kramer 1981, 8). Specialty shows multiplied to serve campus groups that demanded greater representation and administrators who required more public affairs programming (Kramer 1981, 8; Matzek 1983, 8). By the 1990s, for example, WCBN still identified as a freeform station, but allotted half of its time to news from the Pacifica News Network, specialty hours, and programs representing "the dispossessed, people of color, and the voices that are not heard in the mainstream," including talk shows *Closets Are for Clothes* and *Women's Rights and Rhythms* and a special three-day fundraising marathon of Black music and interviews, "Listening to the Color of Your Dreams" ("Welcome to WCBN" 1990). Black music blocks, especially hip-hop shows, fostered a sense of community for Black artists and listeners that unpredictable freeform hours could not provide (Harrison 2016, 147). As Katherine Jewell (2023) concludes in her in-depth study of college radio, institutional bureaucracies, student politics, and pedagogical goals shaped and circumscribed DJs' programming aspirations.

The eclectic brand of freeform radio survived on aesthetic, social, and material intersections between pop and avant-garde. Benjamin Piekut's (2019, 387–407) concept of postwar "vernacular avant-garde" clarifies freeform DJs' approach to mixing music styles, their sundry networks, social visions, and blind spots. According to Piekut (2014, 2019, 387–407), the international abundance of vinyl allowed musicians to incorporate a variety of pop and experimental styles in their practice. A chance encounter with an obscure LP in a record store crate could be as consequential for creative connections as attending a celebrated artist's live performance. The freeform approach operated on the same principle. Stations' and DJs' diverse record collections enmeshed them in multiple creative networks and fan communities, including early internet adopters. These networks reveal the wider forces that pushed the cultural underground online.

FREEFORM RADIO'S ANALOG AND DIGITAL PUBLICS

As one of the most militant open-format stations, WFMU demonstrates freeform radio's social connections across cultural movements and arts scenes. Founded in 1958, FMU has been freeform since 1968, with an album-oriented rock hiatus in 1970–1975.

The station became de facto audience supported in the late 1980s, when Upsala College, heading for bankruptcy, cut off its funding. In 1994, FMU bought its license from Upsala with staff and listener donations (Razlogova 2013). Even before then, it had few specialty shows, no news hours, no public affairs programs, and no programming blocks, because neither student groups nor university administration demanded them.³ It operated almost entirely with a nonmatriculated volunteer DJ crew, like a community station. It drew inspiration from listener-supported Pacifica and community hosts in incorporating informal address and comedy and welcoming local fans as listeners, volunteers, and interlocutors (Freedman 2007). “WFMU staffers use music, conversation, phone calls, the tones of their voices, to create an inhabitable space,” one observer reported (Smith 1987, 23).

Its proximity to New York’s many music scenes helped the station reach for extreme sonic diversity. In addition to airing the usual college radio music genres, local bands, and their personal record collections, DJs drew on more than three hundred labels from the Manhattan-based New Music Distribution Service that featured only avant-garde artists who could not count on high sales (Freedman 2022; Beal 2017, 54). In addition to NMDS, the station reported getting disks from “about 450 independent labels” (Pareles and Snider 1988). It imposed no restrictions on popularity, time, or geography, playing Eurovision winners ABBA, Sudanese pop tenor Abdel Aziz el Mubarak, *Billboard* Top 100’s No. 10 Prince, and hip-hop diva Queen Latifah alongside lo-fi pioneer R. Stevie Moore and saxophonist and experimental composer John Zorn.⁴ In an internal FMU manifesto, DJ Irwin Chusid (1978) explained the ethics of freeform: it was “disgusted with commercial radio” and “opposed to segregation of musical styles” (1). Other college stations and DJs shared these values, but FMU’s location and institutional setup enabled open-format broadcasting across the board. As Frank Balesteri, a.k.a. DJ Vanilla Bean, summed up, “The station is there to be used as a musical instrument” (quoted in Smith 1987, 23).

WFMU’s sonic diversity expanded its social networks. The extent of these alliances became clear between 1989 and 1992, when four public radio stations sued WFMU, arguing that its antenna was located one hundred feet too high because of a government survey error made back in 1962 (DePalma 1990, 28). The litigation lasted four years and ended in WFMU’s favor, but it tied up funds and at the time threatened to deprive the station of an estimated 2.2 million listeners. Apart from its space, provided by Upsala College, the station relied on audience support for its entire operating budget, \$125,000 in 1989. Legal and technical fees for December 1989 alone were \$40,000 (Freedman 1994, 31). FMU’s opponents could afford to pay lawyers and engineers. FMU could only count on fans and cultural allies in the New York area.

WFMU’s appeals worked. Five lawyers donated services (Freedman 1994, 31). Several New York venues organized legal fund benefits, including an avant-garde loft Roulette, an anarchist squat ABC No Rio, international music venue S.O.B.’s, and punk mecca CBGB’s. Musicians who participated in the benefits included alternative rockers Sonic Youth, Yo La Tengo, and They Might Be Giants; reggae singer Sister Carol; and John

Zorn with one of his bands, Painkiller (Gehr 1991; Newgarden 1990, 1992). Artist Cindy Sherman, poet Allen Ginsberg, director Jim Jarmusch, and co-founder of the Black Rock Coalition guitarist Vernon Reid, among others, organized a benefit art auction (Schlatter 1992). Freeform pioneer Bob Fass featured Ken Freedman on his show on WBAI in support (Freedman 2022).

WFMU's networks extended nationally as well. Already in the 1970s and early 1980s, the station participated in informal distribution channels outside the music industry. In the late 1970s, cheap 4-track cassette decks with built-in mixing boards boosted multi-track home recording (Jones 1990). These overdubbed music tapes had a signature hiss. Several WFMU DJs embraced this aesthetic, antithetical to the polished commercial mainstream. R. Stevie Moore, an acknowledged pioneer of the genre, had a show on FMU in the early 1980s (FREFF 1983). Irwin Chusid and hardcore punk DJ Pat Duncan played tapes on their shows, among others. By the middle of the decade, another musician, Bill Berger, launched his *Lo-Fi* cassette show (Example 2.1), where he reportedly coined the term *lo-fi* (Harper 2014). ▶

Home tapers mailed cassettes to each other and to alternative radio stations. WFMU became part of this cassette radio circuit alongside KAOS (Olympia, WA), KPFA (Berkeley), WHPK (Chicago), CKUT (Montreal, Canada), Recrues des Sense (Bordeaux, France), and others (S. Marshall 1995). Small cassette-only labels, such as Sound of Pig Music in Long Island, and mimeographed zines, such as *Option* and *Sound Choice*, kept underground cassette distribution alive (Pareles 1987). "I was always impressed at the amount of contributions for the *Lo-Fi* show that came from outside WFMU's listening area," Berger wrote in 2007. "Even in the pre-Web days, the station had a global reputation that helped tremendously to build our music library and in the same way aided in my acquisition of some exceptional rarities in music cassettes" (Berger 2007). From 1993, FMU's *The Catalog of Curiosities* distributed noncommercial music recommended by DJs, some of it on tape, to fans out of FMU's range. *The Catalog* widened FMU recognition nationwide, as West Coast resident Kurt Cobain demonstrated when he perused the first installment of *The Catalog* on the set of *MTV Unplugged* in November 1993.

Zines like *Maximum Rocknroll* and *Flipside* served to connect musicians and radio hosts across the continent. Many radio hosts were musicians themselves, such as bassist Laurie Sidis, a.k.a. FMU DJ Laurie Es, who since 1982 had hosted indie rock bands on the air, from grunge pioneers Soundgarden to local all-girl punk group Lunachicks (Pyro and Fear 1990). In its 1992 manifesto, *Maximum Rocknroll* guide *Book Your Own Fuckin' Life* announced itself as a "tool" of "national and international communication within the DIY movement," listing like-minded independent labels, venues, promoters, stations, and hosts (Profane Existence 1992). "Live bands, Thursday nights 9:30–12 midnight, punk-HC," announced Pat Duncan's *Book Your Own Fuckin' Life* listing. One can hear several visiting hard-core punk bands on Duncan's archived shows from the period, including Example 2.2, a live set by positive hardcore West Coast band Insted in November 1988 (rebroadcast on March 24, 2005). Between songs, vocalist Kevinsted,

a.k.a. Kevin Hernandez, speaks of friendship, the band's upcoming gig at CBGBs, and an album they will release when they get back to Los Angeles. ▶

The station's own zine, *LCD* (*Lowest Common Denominator*), featured WFMU schedules, ads, station news, drawings, and writing by DJs and New York-area scribes. After an open appeal to listeners in 1986 to donate artwork for the inaugural issue, a dozen underground artists contributed cartoons, including Drew Friedman, Mark Newgarden, and Tuli Kupferberg. All of them were fans of the station. The 1980s saw the heyday of alternative comics, appearing in R. Crumb's *Weirdo* and Art Spiegelman's *RAW* anthologies, as well as dozens of smaller collections from Fantagraphics and other publishers (Sabin 1996; Dean 2016). One of the contributors to *LCD* and both anthologies, Kaz (born Kazimieras Gediminas Prapuolenis, in New Jersey) started his own FMU show in 1986 and then between 1987 and 1989 hosted *Nightmare Lounge* with Chris T., a.k.a. Chris Tsakis. The two played "punk, art damage, hillbilly blues, noise, space-age bachelor pad music," according to Kaz. "We'd get drunk and take on-air phone calls. We interviewed Peter Bagge, Robert Williams, Gary Panter, Mark Newgarden, Joe Coleman, the Friedman brothers," all cartoonists from New Jersey and the New York City area (Kaz and Kelly 1996, 125).

Zines' analog routes overlapped with BBS—online spaces for exchanging messages and files. By the mid-1980s, affordable microcomputers with modems made it possible to interconnect via the phone without operator assistance, leading to a world of public BBS networks, many set up by lay enthusiasts (Driscoll 2022; Rankin 2018). Fans conversed on Usenet music discussion groups from 1979 (Garson 2022); by 1987, both a major zine, *Factsheet Five*, and a music fanzine, *Flipside*, set up their own BBSs (Williams, Gunderloy, and Gunderloy 1987). In 1985, writer Stewart Brand cofounded The WELL (Whole Earth 'Lectronic Link), the best-known BBS network. The WELL grew out of Brand's print *Whole Earth Catalog* of do-it-yourself tools that had served countercultural communes in Northern California and beyond since 1968 (Turner 2006). The WELL drew male computer users and entrepreneurs from Silicon Valley. In New York, programmer Stacy Horn launched her own BBS, ECHO (East Coast Hangout), in 1990 (Hall 1990). Horn shaped ECHO as an alternative to the WELL, recruiting women members and drawing on local artist communities (Horn 1998). ECHO provided an opportunity for WFMU to get on Gopher, a pre-web searchable file network, in 1994.

ECHO's membership overlapped with WFMU's radio publics. Cartoonist Jim Ryan, an ECHO participant, contributed artwork to the *LCD*. Other "Echoids" already listened to the station. When coder and musician Henry Lowengard took over as ECHO webmaster in January 1994, his predecessor suggested posting "articles from WFMU's *LCD*, as well as the current program" (quoted in Lowengard 2022). As soon as he took charge of the ECHO server, Lowengard called up Freedman and offered to set up a WFMU Gopher site that eventually included the schedule, *LCD* articles, DJ pages, online quizzes, and some downloadable audio files (Lowengard 2022). These features helped

the station to fulfill and extend its broadcast license. “We were licensed to cover New York City but in reality could barely cover it because of the geography and the buildings,” Freedman explains. “We looked to the internet as a way of getting our signal out there and getting more listeners without having to compromise our programming philosophy” (C. Marshall 2010). Several months later, WFMU ported these materials to its first website, set up by another volunteer with pro bono hosting from Saint Peter’s University in Jersey City (Freedman 2022).

Artists, musicians, and coders in WFMU’s orbit had in common their love for the bizarre and the outrageous. One of Lowengard’s musical tools, HARM, distorted the human voice, changing pitch, slowing it down, “monotonizing” it, transposing live sound, and turning it into autoharp strings. “I went on the air on WBAI-FM on Jan 11, 1993 at the graveyard hours of 1:30–3:30 AM and HARMed listener phone calls,” Lowengard remembers. “The phone lines were quite jammed” (Lowengard 1994). His grating broadcast was in line with WFMU’s sensibilities. When an anthology of LCD material came out in 2007, a reviewer introduced it as “a celebration of everything but popular appeal,” including “vaguely dated junk,” “creepy” interviews, and “wholly inexplicable and vulgar cartoons” (“Review of *The Best of LCD*” 2007, 52). In 1986, these words would have been received as the highest compliments. Greil Marcus (2017) recommended the Fall LCD issue to his *Village Voice* readers as a zine from WFMU, “The #1 Choice of Lowlife Scum” (17). The LCD cover for the summer issue, by RAW contributor Dutch cartoonist Joost Swarte, depicts a DJ trying to fill out the music industry’s “Pop Poll,” while a cacophony of screeching sounds (represented by a saw, broken glass, and human bones, among other things) emanates from ten record players around him (Dave the Spazz 2007, xv). The cover captured listeners’ experience of the station well. “It’s sick, twisted, horrible noise,” John Zorn said about *The Hound Show* in 1991. “Those are four of my highest compliments” (quoted in Asimov 1991, C1).

The shared taste for freeform radio’s “horrible noise” allowed artists, musicians, coders, and DJs to form and maintain practical alliances in the modem world era. WFMU’s music, print, and technical networks operated in part on a gift economy, a decade before the Free and Open Source Software movement made the term fashionable (Barbrook 2005), and in part on what Georgina Born (2013) terms “petty capitalism.” Born argues that “myriad small-scale forms of entrepreneurial, commercial activity in culture” provide a “possibility of new, experimental, and alternative forms of production and circulation” (64). “We believe in the distribution of independent records, and we operate as a non-profit,” Carla Bley explained the purpose of the New Music Distribution Service. “We run the office as a small business trying to break even to survive” (quoted in Beal 2017, 56). WFMU’s local, national, and international allies adopted collective, interinstitutional survival strategies. Software engineers and the on-line distribution networks they set up for FMU were crucial components in this mutual aid system, among others.

THE ETHICS OF FREEFORM AND THE HACKER ETHIC

At the time of WFMU's lawsuit battle, one of its supporters was Emmanuel Goldstein, founder of the *2600: The Hacker Quarterly* and host of the hacker-interest show on WBAI, *Fifth Corner*, launched in January 1990 and retitled *Off the Hook* in October of that year (Goldstein 2009). Ken Freedman appeared on his show several times, advocating for WFMU in the lawsuit in 1990 and then again fundraising for the station in 1991 (Goldstein 1990, 1991). In an autobiographical essay, Goldstein (2009) describes his influences: computers, writing, and radio. "I was lucky enough to stumble upon WUSB at Stony Brook University," he remembers, "a freeform noncommercial radio station where I was encouraged to be creative and alternative in all sorts of different ways" (xxxv). Goldstein's trajectory and his support for WFMU points to historical parallels between radio and computer experimenters. Kevin Driscoll (2022) argues that amateur BBS builders of the 1980s drew on CB and ham radio traditions. According to Andrew Bottomley (2020), computer science students who set up audio streaming at several college radio stations around 1994 were motivated by a "hacker ethic" similar to that of "the amateur hobbyists in the 1910s–1920s prenetwork broadcast radio era" (22; see also Bonini 2014, 13). Freeform radio belongs in this common genealogy for radio and computer networks.

At the time of WFMU's early online experiments, Steven Levy's (2010) book *Hackers*, first published in 1984, popularized the "hacker ethic." One of its tenets common with freeform radio was freedom of speech. Whereas freeform DJs cherished their freedom to play any sound they wanted, hackers valued freedom to tinker with software and share information (Levy 2010, 28; Coleman 2012). Although coders in WFMU's orbit did not belong to underground collectives, they nevertheless operated in ways that distinguished them from run-of-the-mill professional technologists. "I was and remain a Unix hacker (in the old-school sense)," Brian Redman (2021) says about his work on Unix networking at Bellcore. Henry Lowengard (1994) described his early computer music composition efforts as "years of steady computer hacking." Redman and Lowengard approached problems "not only with technical know-how and ability," as any technologist would, "but also with some degree of agility, guile, and even disrespect"—what anthropologist of hacking Gabriella Coleman (2017) calls "craftiness" (92). WFMU's collaboration with engineers drew on this affinity between this "old-style" computer craft and freeform radio as practiced in the 1980s and early 1990s.

Coders and DJs shared their love of humor, using it to assert their autonomy. Redman's dial-in service that included a phone line broadcasting WFMU also offered a "real time music demo" from his colleague at Bellcore, engineer and musician Peter Langston, where two voice synthesizers, Eedie and Eddie, conversed and performed silly improvised songs. One reviewer recommended the demo for those who want to find out "what happens when you let loose UNIX hackers on a telephone switch" (Freed

1986). In his official report to Bellcore, Redman (1988) listed a respectable classical station WQXR among the phone-in options but included a shoutout to “The #1 Choice of Lowlife Scum” WFMU when quoting his own computer code (6).

```
#now connect them to music
echo -n Ewfmdu:$2:/dev/null:1:$§ >/dev/ptlinks/redcom
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This hidden reference drew on hackers’ “long tradition of inserting small snippets of wit into code and documentation” (Coleman 2017, 93).

Likewise, in late 1985, WFMU hosts used satire to assert their autonomy from commercial radio. On commercial stations, DJs announced a limited preapproved playlist with elegance, verve, and expertise (Douglas 1999; Russo 2022). Not so at FMU. Irwin Chusid and Ken Freedman appeared on *The Neal Adams Show* to teach Adams, a newcomer from a commercial station, how to be a WFMU DJ. “You talk very fast,” advised Chusid live on the air, “Don’t do that. FMU listeners can’t keep up with you if you talk fast, they think that you are emulating a commercial disc jockey.” Adams was overly self-assured: “You gotta come on mike and when you are reading your playlist, you gotta say things like, ‘Ok . . . We heard from . . . What was that, Joy Division I played?’ Then you gotta fumble for the album cover.” Other advice included to hit the mike from time to time, mispronounce artists’ names in every way possible, and announce past live performances. “Ambivalence and uncertainty are essential down here at FMU,” Chusid summed up. “You should never sound like you know what you are talking about” (Example 2.3). Where mainstream DJ manuals offered a recipe—an algorithm—for commercial success, FMU produced a how-to manual for rejecting that goal. ▶

Coders’ and DJs’ antiauthoritarian satire converged in WFMU sound on *The Hound Show*. Several of Redman’s creations for FMU were humorous collages that ended up on the air: an interface for combining brief sound clips to create a station ID to use during broadcasts, and “the *Dragnet* timebyte generator” that on the fly created clips of *Dragnet* radio episodes where characters told time, as in Example 2.4 (Redman 2021). James Marshall, a.k.a. the Hound, ran the timebyte generator on his October 10, 1992, three-hour broadcast (Example 2.5) that also included an R&B instrumental set and a twist set, among others; local announcements and news; and a clip from a 1950s speech decrying rock ’n’ roll as devil’s music. ▶

The Hound drew on his personal stash of R&B, rockabilly, and country 45s from the 1950s and early 1960s. “These records have an eccentricity and regional identity,” he told an interviewer, and playing them meant “a refusal to conform to the standards of commercial radio” (Gioia 1989; Asimov 1991, C1). Marshall’s sets traced a song through its covers, or a technique through several artists who used it, but without reverence. He panned college hosts who would treat an old 45 as an art object. “That’s putting it under glass so you can’t even touch it,” he argued. “The last thing you want in rock-and-roll is good taste” (Asimov 1991, C1). Redman’s audio cutups and the Hound’s wail at the start of the show (Example 2.6) made it clear that radio and music history would be treated with the utmost disrespect. ▶

The Hound Show represents perhaps the most innovative FMU contribution to radio art: archival shows drawing on DJs' personal collections. These DJs' historical deep dive across genres improved on the 1960s progressive rock version of freeform and college radio's preoccupation with new indie releases. *The Hound Show* went on the air in 1987; by 1991, the Hound's estimated radio audience had grown to fifty thousand. Thanks to tape distribution, he received letters from fans throughout the United States, as well as Europe and Japan (Asimov 1991, C1). Several FMU shows continued his historical freeform approach, including Laura Cantrell's country and blues *The Radio Thrift Show* that showcased women artists (Example 2.7), Gaylord Fields' avant-garde-to-pop exploration across the lines of race and geography (Example 2.8), and Michael "MAC" Cumella's *The Antique Phonograph Music Program*. These shows, as well as Redman's experiments with *Dragnet*, represented music and radio history as fragmentary, mutable, and available to be reinvented for the present. ▶

CONCLUSION

Contemporary music streaming is a spin-off of music radio. Both are examples of what Michele Hilmes (2020) calls soundwork: artworks that use "sound as their primary expressive tool, combining elements of voice, music, and actuality sound (sometimes referred to as ambient sound, or noise), no matter what the vehicle of delivery or the technological or institutional framework that produces them" (180). Streaming platforms are called "playlist factories" (Ugwu 2016), yet they routinely employ knowledgeable humans to mold the playlists in tandem with recommendation algorithms (Goldschmitt and Seaver 2019; Sinclair 2019). On-demand play, remote from the live broadcasting experience, fuels user-generated playlists that draw on the analog mixtape tradition (Gallego 2014). A truly unusual combination of tracks may be "an artwork unto itself," as *Pitchfork* described DJ Four Tet's ruminative 155-Hour Spotify playlist of 1,847 tracks assembled over six years (Cush 2022). Four Tet's playlist is a freeform soundwork insofar as he hacked the platform: he invented names made up of icons that could not be searched in Spotify's interface to create a specific path for his listeners through his idiosyncratic collection.

The perspective of platform studies alone can flatten other soundwork traditions. For example, Nick Seaver (2021) argues that recommendation engineers imagine their object as "an abstraction: an idealized vision of all the world's music, arranged by similarity" (44). Freeform radio's eclectic approach to music contradicts such a synoptic view. Music industry perspectives also flatten our perception of radio publics and music fans. Platforms conceive of music fans as something that can be turned into a commodity (Morris 2018). There are other ways to think of fans in the music industry context: as "workers" whose listening or viewing practices get sold to advertisers and as co-producers of content as, for example, playlist producers (Newman 2004; Baym, Cavicchi, and Coates 2018). College and community station volunteers, also fans, fall

into none of these categories. In 1989, Redman came over to WFMU to help the station move to a new building and, as he puts it, “was welcomed into the WFMU family” (Redman 2021). Among his other contributions, Redman helped host Nicholas Hill set up three telephones for his *Live Music Faucet* show so Hill could broadcast from clubs in New York City in 1989–1990, before this hardware was easily available (Freedman 2022). His volunteer work exemplifies the crucial role audiences continue to play in independent arts institutions: they help set up and maintain the infrastructures that support and disseminate creative work.

The term *streaming* is often used in the 2020s as if music platforms are the only option, as if their centralized distribution systems are the end of history without any horizon for change. This usage obscures discussions about what streaming is good for and how it can benefit performers and listeners. Before streaming platforms, broadcasters used computers to automate “playlists” in the original sense that emerged in the 1950s—approved lists of songs DJs could play over the air, usually determined by marketing considerations (Russo 2018, 2022; Stuhl 2022). Freeform radio, where hosts could play any tracks they wish, emerged in opposition to the preset playlist format. Independent stations, museums, and sound archives streaming online today could learn from this history. The early online services for college radio and independent music were embedded in local scenes, national zines, and international tape exchange routes. These mutual support circuits provide an economic model of solidarity and survival for alternative media, crucial for the centralized music streaming present.

NOTES

1. For more examples, see Morris (2020) and the *Radio Survivor* blog at <https://www.radiosurvivor.com>.
2. Studies of freeform radio in the 1960s include Keith (1997), Douglas (1999), Walker (2001), and Fisher (2007).
3. See WFMU schedules for 1986 and fall 1987 (Dave the Spazz 2007, 14–15, 111).
4. See ABBA (Smith 1987, 23), Abdel Aziz el Mubarak (“Radio Airplay: East” 1988, 64), Prince (“Radio Airplay: East” 1988, 64), Queen Latifah (“Beat Box Reports” 1989, 26), R. Stevie Moore (“Radio Airplay: East” 1989, 51), and John Zorn (“Radio Airplay East” 1989b, 51).

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