Augmenting or Automating?
Breathing Life into the Uncertain Promise of Artificial Intelligence

Job Market Paper

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Abstract. In this paper, I conducted an ethnographic study of a startup, which was developing an AI that is threatening a form of work long used to distinguish humans from machines: artistic expression, here in the form of music composition. All of those who worked at the organization primarily identified as members of the occupational community their AI would affect: music composers. These people were in an analytically puzzling position. While the literature has demonstrated how members of occupations affected by technologies have strived to preserve their community's relationship with their work, these people were developing a technology that might compromise it. I discovered how they justified behaving in this way: they positioned the music they were automating as work that they and their community would not find worthy enough to be protected from the advance of machines. This paper suggests that looking closely at what occupation members value may be crucial to understanding what they hold onto and let go on the frontier of the future, especially when developing technologies like AI.

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"We thought [your art] would reveal your souls. Or to put it more finely, we [thought it would] prove you had souls at all." – Miss Emily, from Kazuo Ishiguro's (2005) novel *Never Let Me Go*

Our ability to create art is an important part of what makes us human. We have long believed that this kind of work distinguishes us as a species, and have imagined it – as well as the broader world of emotion – to be beyond the capacity of nonhuman actants like machines (e.g., Brynjolfsson and McAfee 2014; Davenport and Kirby 2016). However, recent advances in artificial intelligence (AI) have disabused us of these preconceptions, intruding into this last frontier of machine capability (e.g., Iansiti and Lakhani 2020; Pugh 2018). This has been the latest in a broader trend of technological progress over the past few decades: we have already witnessed the mechanization of manual labor, the computerization of the workplace, and the increasing automation of cognitive work (Barley 1988; 2020; Kellogg, Valentine, and Christin 2020). Scholars, in turn, have worried what these trends toward machine rationalization might mean for workers and their craft across occupations (Barley and Kunda 1992; Sennett 2008).

In this spirit, the literature on occupations (Anteby, Chan, and DiBenigno 2016; Van Maanen and Barley 1984) has extensively studied how members respond to technologies that threaten their communities' relationship with its work. Some of these studies have examined situations where workers have pushed back against these technologies, in the spirit of the Luddites and their early attempts at sabotaging textile machinery. Another stream of this scholarship has looked at occasions where workers allow technologies into their lives, noting that they have done so in ways that maintain or even expand their occupational communities' relationship with their work. The takeaway generally has been that occupation members will attempt to preserve their communities' relationship with their work. However, some occupation members have been responsible for developing technologies intended to compromise their communities' relationship with their work (e.g., Joyce et al 2021; Sachs 2020). This suggests that

we need to rethink how we have conceptualized occupations and how their members relate to technologies like AI.

In this study, I followed a group of people who were and primarily identified as music composers, who were members of a startup company developing a music composition AI. At first, these people acted in ways aligned with the literature: they set out to make sure that their AI technology would augment music composers, complementing their occupational community in their work of music composition. However, they and their organization eventually shifted toward automating these people, threatening to completely substitute for members of their occupational community. To disentangle how they made sense of this inconsistency, as well as the possibility that their technology might compromise their community's relationship with its work, I looked closely at how they justified it. They positioned the music they were automating as work that they, as composers themselves, and their broader community would not find worthy enough to be hold onto and protect from the advance of machines. The value (Lamont 2018) of work thus may be an important factor in who and what occupation members will let go.

OCCUPATIONAL COMMUNITIES AND THE SPECTER OF AI

Artificial intelligence (AI) has jeopardized the human touch that occupational communities bring to their craft (e.g., Barley and Beane 2020; Brynjolfsson and McAfee 2014; Faraj, Pachidi, and Sayegh 2018), affecting domains as diverse as medicine, finance, and art (Iansiti and Lakhani 2020). This tension between rationalization and the more human aspects of work, and the fear that the former might destroy the latter, has recurrently characterized our experience of our transforming economy and society (Barley and Kunda 1992; Sennett 2008). For instance, scholars examining the rise of bureaucracy (Weber [1930] 1992) worried that its formalized structures might crush the human soul of work (e.g., Gouldner 1954; Hallett and

Ventresca 2006; Perrow 2014). Similarly, scholars studying scientific management – and later, the advance of machinery and digital technologies across factory floors – feared that these new approaches to organizing would deskill workers (Braverman 1974; e.g., Burawoy 1979; Edwards 1979; Noble 1977; Roy 1959; Zuboff 1988). The concern that work's rationalization might make it less human thus has been central to our imagination on how work might change.

Members of occupations affected by such changes often have rallied around their work and strived to preserve their community's relationship with it (Anteby, Chan, and DiBenigno 2016; Van Maanen and Barley 1984). Though early scholarship depicted workers as "as passive objects, pushed and shoved by impersonal macrolevel forces" (Simpson 1989: 563; Barley 1988), these people have resisted technologies that threaten their occupational community and the work its members do. For instance, Barley (1986) studied radiologists at a changing hospital, documenting their hostility toward technicians attempting to implement new CT scanner technologies. Vallas (2004) meanwhile found that some pulp and paper plant workers, angered by the introduction of machines that threatened their expertise, were openly insubordinate, refusing to cooperate with the engineers who were servicing the machines. Similarly, Bechky (2020) studied firearms examiners who expressed a great deal of frustration and anger over the fact that they were being asked to make their work resemble DNA testing: a technology gaining increasing legitimacy across the field of forensic science. In each of these cases, occupation members pushed back against technologies.

And while occupation members at times have allowed technologies into their lives, and sometimes have not had the power to resist, they often have attempted to do so in ways that still maintain or even expand their community's relationship with its work. Some of these people have done so by integrating these technologies into their work practice. Lebovitz, Lifshitz-Assaf,

and Levina (2021) found that radiologists using an intelligent technology doubted its diagnoses, thereby making it subservient to their own medical knowledge and discretion. Barrett, Oborn, Orlikowski, and Yates (2012) documented how hospital pharmacists took advantage of a robot technology's malfunctions to ensure their continued relevance to their work. Given that it often dispensed the wrong amount of medicine, the pharmacists needed to pay close attention to how much medicine the robot provided and make any necessary adjustments. Moreover, financial traders have worked alongside algorithmic and other digital technologies once predicted to put them out of work (e.g., Beunza 2019; Knorr Cetina and Bruegger 2002; Stark 2009).

Other people meanwhile have reshaped their work around disruptive technologies to maintain their relationship with it. Nelson and Irwin (2014) followed librarians who, threatened by the rise of the Internet and the democratization of information search, redefined the nature of their work. They shifted from finding information for their patrons to curating the information that patrons found on their own. Lifshitz-Assaf (2018) similarly found that some scientists at NASA, threatened by the organization's turn toward crowdsourcing scientific innovations, also reframed the nature of their work, reconsidering what it meant to engage in science. They changed from believing that only they could participate in scientific discovery to believing that "innovative ideas should be encouraged whether they originated inside or outside the organizational boundaries" (764). Beane (2019) meanwhile studied surgical residents at a teaching hospital, who received less hands-on experience after the introduction of a robotic surgery technology. They participated in a new form of learning called "shadow learning" to engage in their craft, which entailed practicing after hours without expert supervision.

Some people also have approached these technologies in ways that have allowed for their occupations' emergence. In a theoretical statement, Kellogg, Valentine, and Christin (2020: 338)

wrote about the rise of "algorithmic occupations." Given the sheer amount of effort required to "to develop, fine-tune, implement, maintain, and change" these technologies, people have now started engaging in new forms of work that entail curating and cleaning data sets, advocating for algorithms across workplaces, and making sure that these algorithms function well once implemented, among other tasks. In one example, Gray and Suri (2019) highlighted the vast but often invisible workforce of "ghost workers" who have spent time tagging images and flagging online content, to train these technologies to see the world the way that humans do. In another example, Shestakofsky (2017: 383), studying a technology startup, uncovered their reliance on "computational labor in the form of Philippine workers who performed repetitive information-processing tasks to complement software infrastructure." These examples together indicate that occupation members will either resist technologies or approach them in ways that attempt to complement the community's relationship with its work.

How, then, have occupation members justified creating technologies intended to carve away at "tasks that once were protected as the proper domain of professional judgement" (Burrell and Fourcade 2021: 6)? Scholarship generally has assumed that the developers of these technologies, and the organizations of which they are a part (Bailey and Barley 2020), are distinct from the communities they might affect (e.g., Akrich 1992; Barley 2005; Forsythe 2001; Oudshoorn and Pinch 2003; Zuboff 2019). However, these people, in some cases, have been one and the same. Occupation members' experience with and expertise in their communities' work have uniquely qualified them to build AI technologies that can perform it, necessitating their participation in these technologies' development (Joyce et al 2021). For instance, Sachs (2020) followed a group of art experts, ranging from historians to curators to professional artists, who worked to embed their knowledge of art into a startup's algorithm, so that it could classify art

like they and their community could. Occupation members thus have had a hand in building technologies that might compromise their communities' relationship with their work. This suggests that we need to reconsider what those affiliated with such communities feel they owe each other on the frontier of the future.

Value and the Symbolic Boundary between Humans and Technologies

We can do so by exploring how these people determine who and what should rightfully remain within their occupational community, rather than be given over to technologies like AI: how they decide who and what should be on either side of the symbolic boundary between the world of humans and the world of machines. Symbolic boundaries like these are the "conceptual distinctions made by social actors to categorize objects, people, practices, and even time and space" (Lamont and Molnár 2002: 167). Past scholarship has extensively looked at various kinds of symbolic boundaries, such as those that occupations draw around their work. For instance, Abbott (1988) highlighted the importance of these boundaries to the battles that occupations have with one another over what work can be considered within their jurisdiction: a perspective which has been immensely influential and taken up by subsequent scholarship (e.g., Bechky 2003; DiBenigno 2018; Huising 2015). Symbolic boundaries thus are how people analytically break down the situations they encounter: the folk classifications by which they breathe order into the messiness of social life as they live through it (Bowker and Star 1999).

These boundaries – namely, how and where they are drawn – often are shaped by our evaluative practices (e.g., Lamont 2012; Lamont, Beljean, and Clair 2014; Stark 2009), revolving around that which we recognize as valuable and worthy. This has previously been alluded to in some study on occupations and work, which has looked at intra-occupational dynamics to understand where occupational boundaries are drawn. Hughes (1994), in one early and rather

prominent statement, drew our attention to the fact that these communities do not value all the work they do equally. Rather, members often are compelled to engage in some work which they consider "dirty": a "symbol of degradation … wound[ing] one's dignity," and "of which [occupation members think they] ought to be a little ashamed" (49-50), that they may attempt to distance themselves from to preserve their community's respectability. This insight has implications for how people sort between what they want to hold onto and protect, as opposed to let go and leave behind (Lamont 2018), and where they consequently may draw the boundary between their occupation and the technologies that threaten to encroach on it. It suggests that occupation members facing technologies like AI may relinquish across these boundaries forms of their communities' work, as well as the people who do it, that they find less worthy or valuable.

To explore these issues, I studied a set of people within an organization developing an AI that composes music, all of whom identified as members of the occupational community their technology would affect: music composers. While these people initially claimed that they wanted to augment their occupational community through the technology, they shifted toward intending to automate its work. Specifically, they changed from building the technology for their fellow music composers toward targeting a new user in order to make money: video content producers, though this new user would be using the AI instead of human composers. To justify compromising their occupational community's relationship with its work, the company's members positioned the music that they were automating, as well as the people who did it, as unworthy of being protected from machines, which they and their broader composition community would be willing to let go to their AI technology. My study suggests looking closely at what occupation members value, to understand how they relate to technologies threatening their communities.

SETTING AND METHODS

I studied an early-stage startup, pseudonymized as Reverb, developing an AI that composes music. Founded about five years before I started my fieldwork, Reverb was headquartered in a major American metropolis and employed roughly twenty people to develop and support its AI, and was growing rapidly. While about half of these people worked on the company's business side, which mainly included one-person departments that focused on sales and marketing, product management, user research, and company culture, in addition to the startup's CEO and the interns they hired from local business schools, the rest of the company's employees worked as developers of the AI technology. Notably, nearly all these people were members of the occupational community their technology would affect: music composers. They thus provided an opportune case to understand how people like them justify creating a technology that may compromise their community's relationship with its work.

Data Collection: Ethnographic Participant-Observation and Interviews

To explore how these people made sense of their technology and its potential consequences, I studied their lives at the company, as well as their relationship with their occupational community of music composers. To gain an understanding of their lived experience at the company, I conducted ethnographic fieldwork at Reverb for roughly twelve months, acting as a participant-observer. I shadowed every member of the company as they did their work, taking detailed fieldnotes on what they were doing and how they talked through it as they were doing it. Along the way, I asked questions, prepared and on-the-fly, whenever they had a spare minute, be it outside on their cigarette breaks, on their way to get a snack from the company kitchen, or in those brief moments when they were looking for an excuse to procrastinate. This all allowed me insight into what was happening on a daily basis and how they interpreted what

was going on. Moreover, I participated in some user research work, where I sourced potential users and added to the company's client pipeline. Doing so allowed me to get a feel for the rhythm of everyday life, as well as allowing me access to meetings (e.g., company standups) and documents (e.g., spreadsheets on clients, slides on the company's future) related to my work. I supplemented this all with company members' public appearances, be it interviews I found online that they did with the media, product demos, or guest lectures I attended.

To gain an understanding of the occupational community of music composers, as well as what it meant to be a member, I conducted forty semi-structured depth interviews with music composers unaffiliated with Reverb (Gerson and Damaske 2020). I sourced interviewees by reaching out to my immediate networks, cold-calling composers through social media sites to extend my reach, and snowball sampling. I focused on interviewing those writing compositions for video media – ranging from film to television to advertisements to video games – given that Reverb's technology was mainly impacting this domain, though I sampled a few composers who wrote other kinds of music. During the interviews, which each lasted roughly ninety minutes, I asked questions about their work, such as what they found meaningful about composing music, and homed in how they related to the rise of AI, investigating how they were imagining the future of their work and what role this technology might play in their lives. I drew on my own experience as a musician to make sense of what they were saying (Anteby 2013). Doing so allowed me insight into how they have interpreted what is at stake about their occupation with AI's advance, which I compared with how Reverb's members talked about it.

Data Analysis

I engaged in inductive qualitative analysis (Strauss 1987) to think through my data. I began by manually coding my materials and memo-ing based on the analytical categories I was

surfacing, allowing any weak spots and gaps in my emerging analysis to guide the direction of my ongoing data collection efforts. Along the way, I began to notice that Reverb was shifting from augmenting composers, or extending their ability through the AI, toward automating them, or replacing them in their work, and started to home in on how its members made sense of this shift. Given the stark difference between what company members intended and what they did, these people needed to "shore up the timbers of [their] fractured sociation" by accounting for this inconsistency, "verbally bridging the gap" between these contradictory aspects of their lives (Scott and Lyman 1968: 46). This inconsistency thus acted as an analytical lever, providing an opportunity to surface and study how Reverb's members justified compromising their occupational community's relationship with its work.

These justifications provided the basis for my emerging analytical framework. I uncovered how the developers interpreted the value of the work they were automating. They positioned this work as being unworthy of being protected from machines. And in comparing these justifications within the company with how other members of the broader music composer occupation discussed their work, I found that talk at Reverb accorded with some other community members' beliefs: the work Reverb was automating had long been considered a lesser form of music by many within the community. I then compared my findings with the existing theoretical literature. They resonated with some scholarship (e.g., Lamont 2018), documenting the struggles over worth and recognition that have characterized our experience of the changing nature of work: our attempts at assessing which forms of work, as well as workers, are valuable enough to hold onto as we enter a new economy. These comparisons between my findings and existing theoretical conversations helped me to hone my emerging framework on

how occupation members make sense of developing technologies that may compromise their community's relationship with its work.

SHIFTING FROM AUGMENTATION TO AUTOMATION

Reverb's members identified as members of the occupational community they were affecting through their technology: musicians. For example, all of those hired as developers were, first and foremost, professional composers, and primarily identified as such. As the head of engineering shared in a product demonstration to some local university students,

> We at Reverb are musicians. Everyone working on this technology has a musical background. My background is in music. I have a bachelors in music composition, a masters in electronic music, and a doctorate in music composition. I picked up programming through music, because as a composer, I was looking for a tool that would help me further express what I'm doing. We are all composers, primarily.

As a testament to these sentiments, they all mostly had received advanced degrees in music, had taught themselves coding principally to work with the advanced technologies that have increasingly been a part of music production and composition, and continued to be involved in their careers as algorithmic composers, studio musicians, and singer-songwriters. Similarly, many on those on the business side – ranging from the company's user researcher to its interns – were or had been composers themselves for television, film, and pop music tracks, among other kinds of music. The company's CEO, a Hollywood film composer himself, proudly highlighted this aspect of Reverb in interviews with the press, saying, "What I love about Reverb is that almost every single person is a professional composer or musician."

Their membership in the music composition occupational community provided the basis for their claim that they, as composers themselves, had no interest in compromising the community and its relationship with its work

Initially Intending to Augment Composers

Appealing to their own background as composers, Reverb's members at first claimed that they wanted to protect their music composer community and its relationship with its work. As the CEO argued in interviews with the press,

> We are musicians. We are composers. We're not coming at this as data-scientists, or as people who saw a business opportunity and wanted to make money. We're coming at this as creative individuals who want to help creativity.

Similarly, one of the members of the company's business side, who was a composer for television and advertisements, claimed that "All of us are musicians. No one wants to be replaced! We just want to contribute to the future of music." Even further, a developer expressed how much he, as a composer himself, cared about preserving the community's relationship with its work, sharing how he had grappled with the AI and its potential consequences for the community:

> Throughout my entry interviews with Reverb, I asked: 'how does this not ruin the lives of our community?' Through some conversation, I realized that we're coming at this from the perspective of 'musicians are the best musicians.' We're not trying to remove people from music creation. So, I don't feel worried.

Reverb's members thereby claimed that they, as composers, did not want to compromise their own or other composers' relationship with their work of music composition. This was expressed through their approach to developing the technology: they initially designed the AI for composers, and imagined it augmenting these people by collaborating with them.

Designing the Technology

In designing the technology, company members built it in ways that reflected the notion that it was being developed to be used by composers. That is, the AI was designed in ways that strongly resembled a technology that composers would have already been familiar with using in

the course of their work: Logic Pro, an industry-standard music composition technology (see Image 1). This was expressed through the AI's form, interface, and functionalities.

Form. In terms of form, both technologies existed digitally, thus mimicking a form that would be readily accessible by composers: most compose nowadays via software packages downloaded onto their computer, rather than through pen and paper. Moreover, and to add to their technology's usability by composers, a beta version of the AI technology was offered publicly through Reverb's website, for use by any composer who potentially wanted to try it out and play with it in the context of their own music.

Interface. Both user interfaces also were very similar in style and look: both screens prominently featured vividly colored soundwaves – representing the compositional output – which were superimposed on dark-colored backgrounds. Further, like Logic Pro, other buttons and drop-down menus, indicating various ways by which the composer could manipulate the soundwaves on their screen, were relegated to the sides of the interface.

Functionalities. Further, many of the functionalities that the composer could use were similar between the two technologies. For example, the user could drag and drop parts of the soundwaves on the screen, allowing them to extend the soundwave, thus elongating the amount of time it took to play it, or to cut and paste parts of the soundwave from one place to another. In other examples, the user could also add and drop electronically-performed instruments from the mix, change the speed of the playback, and even change the music's key signature by pressing a button which would transpose the notes. All of these functionalities were common to the older industry-standard technology and Reverb's technology. The AI's design indicated that it was being developed to be used by composers.

Imagining Collaboration

Moreover, company members envisioned their AI collaborating with composers: they saw it acting as a tool composers could use to perform some tasks in ways that would extend their ability, or augment them. To illustrate this vision, they talked about a singer-songwriter who used the AI in a way that "fe[lt] like collaboration" to her. That is, she described the AI as a "tool [she] used in [her] creative process" to compose her music's harmonies: a task that she did not know how to do, but which was needed to support the lyrics and melody she composed. As she mentioned in a press interview,

> I turned to the technology because I'd find a chord on the piano, but then I couldn't get to the next few chords. It frustrated me to no end. Now I'm able to iterate with the music and give it feedback and parameters and edit as many times as I need. I can now play what I hear in my head.

Drawing on this example, one of the company's co-founders, a sound designer, built on these arguments while talking with the press about their technology and the future it would evoke:

> [The pop singer] collaborated with the technology: she told the computer the sounds, notes, or instruments she wanted. The software then delivered an audio fragment to match that criteria. Then the pop singer was able to edit these fragments and stitch those fragments together to create a track. This is what the future holds. That's what we're working towards: to have AI integrated into the workflow.

This echoed how other members of the company thought about their AI and how it would interact with human composers. For instance, the CEO claimed in public interviews that "the future of music will be created through the collaboration between humans and AI," wherein their AI would "help creators to be more creative, to be more effective, be more efficient." Similarly, Reverb's developers felt that "the AI we are developing has the greatest potential as a tool for collaboration: it has great potential in enabling rather than supplanting creativity," according with their broader belief that "computers are things that should enable us to do things faster, better, be more creative." Members of the company argued that their AI would collaborate with

and therein augment the composers, claiming that "it's not artificial intelligence. It's intelligence augmentation. It's allowing creative people to further themselves."

Veering Toward Automating Composers

However, Reverb's members began to shift in what they intended the AI to do. Having not made a profit in the four years since Reverb was founded, company members increasingly felt they needed to provide some evidence that they would be able to deliver a return on investment, as is expected of startups. As one developer shared in a private conversation with me,

> We need to switch to a revenue-based system rather than continuing to lose money. Our investors are asking, 'when are you switching over to revenue?' Look, we know that eventually, investors want to see a return. We know that this is what is expected. This is a continuing story with the corporate world. Our CEO has been really focusing on this.

Against this backdrop, the company's user researcher, a singer-songwriter and guitarist himself, began to look closely at data Reverb had been collecting on users of its publicly-released beta technology, and unexpectedly began to realize that musicians – namely, those they had intended to target as users – often were not going from using the technology once to becoming repeat users, negatively affecting potential profits.

> The research told me that independent musicians are the first to drop. Even though they use it, they are the first to drop. Musicians have a 34% active to engage rate. Meanwhile, we have an 84% active to engage rate without individual musicians.

Rather, the user researcher found that those repeatedly using the technology, and who found it well-suited to their needs, were video content producers, such as video editors at advertising agencies, radio ads producers, professionals at animation studios, and filmmakers. Consequently, he suggested targeting video content producers as their end user instead, arguing that "we need to

create the ideal product for this particular customer rather than a product for everyone: this just makes sense for where we are at."

Notably, company members' embrace of this shift entailed acting in ways that were at odds with their prior intention of protecting the music composition community and its relationship with its work. This was expressed through their new approach to developing the technology: they re-designed the AI to no longer be used by composers, and re-imagined it automating these people by "competing" with them.

Designing the Technology

In designing the technology, company members re-built it in ways that reflected the notion that it was no longer being developed to be used by composers. That is, the AI increasingly began looking like a stock music library interface (see Image 2), which video content producers regularly used, rather than an interface that resembled a music composition interface which music composers used (see Image 1), as it did previously. This was expressed through the AI's form, interface, and functionalities.

Form. In terms of form, Reverb's technology was still digital and accessible through a computer. However, the beta version of the AI technology was no longer offered through Reverb's website, as it had been for ease of use by composers. Rather, the company took it down, and instead began offering private demonstrations of their technology to businesses in video content production.

Interface. Its user interface changed dramatically. Rather than opening onto a dark background with a soundwave superimposed and put front and center, as it had when it resembled an interface that other music composition software used, the technology instead

opened onto a white screen with sample tracks composed by the company listed vertically. These sample tracks were each labelled with a name such as “Bullfighter’s Death,” aimed at evoking a mood in ways similar to stock music libraries (e.g., “Happy Summer Adventure”). This all strongly resembled the stock music library interfaces, where their front-page lists music tracks for sale superimposed on a light-colored background.

Functionalities. Many of the old composition functionalities remained. However, the composition interface (with the soundwave) was placed on another page, which the user would need to click into after first seeing the library-like home page. This change reversed the order of the old site, which opened onto the composition interface, and created a situation where the user needed to click into another page to see where their own composition tracks were being stored, symbolically backgrounding composers and their work. Adding to ease of use for video content producers, a later iteration of the technology allowed them to upload a video into the site, which would then allow them to work on the video and sync it with AI-created music. The AI’s design indicated that it now was being developed to be used by a different user than composers: video content producers.

Imagining Competition

Moreover, company members re-envisioned their AI competing with composers: it would take over the entirety of the tasks involved in writing the background music for videos like advertisements, called “stock music,” automating composers by fully substituting for them. To illustrate this vision, company members often drew on the example of video content producers who were using the AI in this way: these people used the technology to compose music on their own instead of finding and editing human-composed stock music, which they had previously purchased off-the-rack. As one professional producer mentioned in a company press release,

> With Reverb, it takes me less than five minutes to create music for a short-form video, and the track is the exact mood I'm looking for. At past jobs, it could take me as long as two hours to search for the right track and edit it for the video. I can't imagine a better process than this.

Drawing on this example, the company's salesperson, who had studied music in college, shared that she thought of their AI as "competing against composers" for video content producers' attention. This echoed how other members of the company thought about their AI. For example, the company's developers also interpreted their technology as serving video content producers at the expense of those who composed stock music. As the head of engineering said in a matter-of-fact tone to some university students he was guest lecturing around this time, "Let me give the quick pitch on what Reverb is, does, and what our target is. Generally speaking, our current target market is people who would otherwise be using stock music." Likewise, another developer, sitting at his desk in earshot of the rest of the company, expressed to me his excitement about servicing video content that formerly used stock music:

> What is exciting about this is that I have never been as certain of a company having a future as I have been here. It really comes to life when you think about the possibilities. There is a whole industry of music which can use it: YouTube videos use several songs, for example, which Reverb could compose.

Reverb's members re-envisioned their technology being used by video content producers, therein competing with and fully automating composers.

JUSTIFYING THE SHIFT TOWARD AUTOMATION

As the company's members justified automating their own composition community and its work, their membership in this community again provided the basis for their claims, whereby they argued that they and other composers held similar perspectives given their shared occupational background. In the past, they had used this extensively when they were trying to figure out how to build the AI for musicians, to assert that they knew what the community

wanted. As one developer explained at the time while considering a feature he was thinking of building into the AI:

> We know what musicians want because we are musicians! Look, we have the reflexes to do a project or not be confident in it and put it on backburner. We can look at the product and say things like, ‘‘why would we bother adding this feature? It seems to invalidate our goals.’

Building on this, and in using a similar approach to figure out how the broader community now might receive their shift toward a new end user and their re-designed technology, Reverb's members were able to qualify the extent to which they would need to protect their community and its work. That is, they positioned stock music as not valuable enough to the community to be protected from machines like their AI: they thought through how they and other composers distinguished between forms of music they composed, and argued that stock music would be a form of music that the community would be willing to relinquish across its boundaries to machines.

Distinguishing

In thinking about how the community distinguished between forms of music they composed, company members argued that the community, even those who wrote stock music, found stock music to be lacking in worth. For instance, the company's CEO explained in an online interview with a YouTube blogger that, "the stock music that goes behind video content is at the bottom of the pyramid, where it's not really valued." The head of engineering expressed similar sentiments in a product demonstration and lecture to some local university students:

> From the side of those who create stock music, no one who writes stock music likes writing stock music. It is an awful lot of work for almost no payback. It's not rewarding at all: if you write something of better quality, you're still not getting paid enough to do that. It is not rewarding extrinsically or intrinsically.

They positioned stock music as work that the community of composers did not like doing and ultimately did not value: an argument consistent with how they as composers themselves made sense of their own work, and selectively consistent with the perspective of other composers.

The Perspective Held by Company Members as Composers

This argument was consistent with how company members as composers made sense of their own work. Company members distinguished between what they called their "magical" and their "shitty" work as composers. On the one hand, they described how "our 'magical' work is related to experimentation: it is creative work," highlighting its artistic value. They talked excitedly and often about this work. For example, the company's CEO and co-founders proudly and frequently shared with the press that they composed bespoke orchestral scores for award-winning Hollywood films, where they had to constantly find fresh, creative ways to tailor their music to the big screen. Their personal composer websites prominently displayed their credits. Similarly, one generally reticent and socially-awkward developer came alive when talking about experimenting on the cutting edge of the classical tradition by "live coding," which entailed performing with computers in real time on concert stages. His eyes lit up, and he gesticulated animatedly. Moreover, he eagerly shared videos of performances in private conversations with his colleagues, in invited public appearances where he was asked to talk about the company's AI, and on his personal composition website, where these videos were prominently displayed.

On the other hand, the company's members referred to stock music as a "shitty" form of music, contrasting its comparative focus on functionality with the artistic value they received from composing other forms of music. As the CEO shared while discussing the world of music and how he personally distinguished between its various forms:

> Look, there's a difference between functional and artistic music. For functional music, people care about its use-case and don't care how it's made. For artistic music, it's the opposite. Functional music is music behind a Facebook video, or any social media thing or advertisement: anything you hear while walking around. Artistic music is Taylor Swift, John Williams scoring Star Wars, pop hits on the radio.

Building on these distinctions, one developer shared that he considered stock music and its functional focus as a lower form of work, saying, "Do you listen to music in ads? It's not inherently interesting." As another similarly said,

> We can distinguish between artistic and functional music. Stock music is definitely on the functional side: it's like a paper towel. You need it for what it does. It's not going to win a Grammy or be a top-40 hit. This is how we frame [makes a disgusted face] 'that.'

Aligned with this, these people did not talk excitedly and often about stock music. That is, those who wrote stock music, often as a side gig, never talked about it unprompted. This was in spite of the fact that they sometimes posted stock music tracks on their professional composer websites, wrote in their composer biographies that they had worked at companies involved with stock music, and occasionally mentioned offhand that they had worked at stock music libraries. Moreover, some of Reverb's members refused to write stock music, feeling it to be beneath them. As one member of the company said with some pride in his voice while talking with some local university students, "composers like myself, we don't compose stock music." In this way, company members indicated that they did not like stock music and did not find it valuable.

Perspectives from Other Composers within the Community

The argument that the community of composers did not value stock music, consistent with the perspective that Reverb's members themselves held as composers, meanwhile was selectively consistent with the beliefs of other members of their community, in a way that formed a crucial part of how company members advanced the claim that the community believed what

they themselves did. That is, their argument emphasized a majority perspective from within the community that was consonant with their own, and kept silent about a minority perspective that contradicted it.

Emphasizing Consonant Perspectives. Aligned with company members' belief that "we have an idea of what is valuable to the community because we were all musicians once," their argument that composers did not value stock music emphasized a consonant perspective from within the community, held by most other music composers. These people also distinguished between music they felt had "an element of magic" and stock music. They talked about music that highlighted experimentation and creativity as more artistic, and as being filled with magic; as one composer highlighted while describing the process of writing music for film,

> For our creative endeavors, it's all the happy accidents that make a thing magic. Like, I once made a huge mistake that ended up being a really cool part of the track. That sort of thing just happens. Sometimes your hands will just do something, and then you look at that and you're like, 'Wait, what is that?' And then, it turns out it's helpful and awesome.

By contrast, stock music generally did not allow for the experimentation and creativity that constituted the magic of their artistry. That is, given that stock music was composed to be flexibly used across different types of video content, it often had to follow a very formulaic structure, so that video editors would have an easy time cutting and manipulating it to fit their video. Adhering to this formula could be artistically unfulfilling, and many composers referred to it with a great deal of antipathy. As one composer shared in an interview, "Personally, I don't really think it's a good way to be creative per se." Similarly, another, though she composed it herself, felt that stock music "is definitely not for everyone. A lot of composers are very prideful, or too artsy, where I think they wouldn't be able to fit this model. I think a lot of composers would just burn out." Yet another composer who wrote stock music echoed these sentiments,

saying, “I honestly get bored by stock music. It's the epitome of generic music. It has to fit into a certain mold, and so you just need to keep creating more of what's already been done.” Unsurprisingly then, music composers often talked about stock music as “not super sexy. I mean, I think it's still kind of stigmatized. In the industry, people don't like the word ‘stock music.’” Members of the broader community indicated that they were not fond of stock music and did not find it valuable, in ways consonant with what Reverb’s members believed and emphasized about the broader community.

Keeping Silent about Contradictory Perspectives. Meanwhile, the argument that composers did not value stock music kept silent about a contradictory perspective on this work, which was held by a small set of composers in the community. While most composers distinguished between their “magical” work and “shitty” stock music, a few composers instead found some magic in stock music, attributing a good deal of artistic value to composing it. Specifically, they talked about how much craft went into writing stock music: they needed to balance between making their music flexible across video content, which was best achieved by making their music formulaic, while also being original and artistically interesting enough for video editors to want to use their music. As one composer said,

> I remember when I was in school, I was like, ‘ah, it's so confusing. They want formulaic music, but they also don't want formulaic music.’ Like, video editors are going to want to chop up the music a little bit, to fit the cuts and fit the length of video that they've got. So, having music that is formulaic is important: it has to have a very clear phrase structure in a clear, discernible meter. But it also needs to be somewhat original or have some unique thing. You don't want the editor or somebody watching it to be like, ‘I've heard this music a million times.’ You want it to be somewhat unique. You definitely have to learn how to write this music.

Central to their craft, then, was “taking these guidelines and making them yours,” or experimenting with the formulaic structure they were given to generate creative ideas.

> So, obviously, you have to keep in mind the structure at all times, but the thing is you don't want copies of other work. It's a tough balance; it takes craft. I sort of have my own process. I think of the structure as a skeleton: I'm just creating a kind of a template. And then I experiment with it, where I do my own thing. I compose like a chef cooking a meal: I start picking my ingredients, and it just flows. It changes. Things come to me.

The magic of stock music thus came from its constraints: the experimental endeavor of figuring out how to generate creative insight from a formulaic structure. This inspired a great deal of passion from some composers. As one composer of stock music excitedly shared,

> Put it this way. It's actually the thing that gives me the greatest pause is creating something from nothing. It's actually like an addiction. When you actually sit down and start writing and it starts coming together, I just, I'm obsessed. I want to get it perfect. It can sometimes keep me awake at night, because my head is racing, because ideas and things are just coming into my head, or first thing in the morning. It's actually my passion: it's the thing that actually fulfills me. Especially at the end, when you've written the track and you listen back to it, you kind of go, 'Wow. It sounds good.'

Similarly, another composer noted that, "some people just fall in love with stock music and are like, 'This is what I want to do.'" They derived magic and artistic value from composing stock music, in ways that contradicted how other members of their community distinguished between forms of music composition. However, Reverb's members remained silent about these contradictory perspectives, instead advancing the argument that composers did not value stock music.

Relinquishing

Building on the distinctions they made between "magical" work and stock music, company members contended that the community would be willing to relinquish stock music, as well as the people who did it, across the occupation's boundaries to machines, arguing that automating this work could allow the community to engage in work they valued more. As one developer phrased it,

> With regard to stock music, we are trying to replace people, and our technology will put some people out of work probably. However, we're not trying to replace artistic music. We're just trying to replace stock music. We are filling a part of the market that people don't want to be in anyway. There is so much crappy music that is generated today, even though there's so much more work beyond this that composers can do. Our technology might displace some work, but we don't ever want to replace human creativity completely. Rather, automating stock music could help the community to explore creativity in other ways!

They positioned stock music, as well as the people who did it, as aspects of the occupation that the community of composers would be willing to let go to technologies like the company's AI: an argument again consistent with how they as composers themselves made sense of their own work, and selectively consistent with the perspective of other composers.

The Perspective Held by Company Members as Composers

This argument was consistent with how company members as composers made sense of their own work. Company members expressed their own willingness to relinquish some of their work – namely, their "shitty" stock music – to machines, contending that automating this music would allow many of them the time and space to do work they valued more. One developer noted how they could "offload the 'busy' work" of stock music onto the AI, explaining that,

> In general, we are always trying to automate things so that we can do other things. Even regular people use a calculator to do math quickly. And let's be honest – I'm a fan of scripting things that I don't want to do! So, it stands to reason that our product is putting shitty music out of business.

This was aligned with how these people, in past situations and with other technologies, decided what work to relinquish to machines. For example, one member of the company allocated work he valued less – in this case, writing down his musical improvisations – to a legacy notation software, allowing him to focus on aspects of his craft that he valued more.

> Automation allows us to do our 'real' work. Take this example. I love to improvise on the piano but don't like the process of taking the improvisation down: that was work to me. For example, I had to write a marimba piece and had a few weeks to write it. So, I improvised a whole bunch of stuff and then had a

> music notation software notate it correctly. I then was able to manipulate what it had transcribed. In other words, I used a computer to take what I was improvising, and then made chunks of music out of them. The moral here is that the more you take the tedious stuff out, the more time you have for the more artistic stuff.

Moreover, and while they acknowledged that relinquishing this music might put some members of their community out of work, they argued that these people were not doing valuable work in the first place, and could be justifiably automated if they did not find ways to do more valued work. As the CEO argued in an interview with a YouTube blogger,

> Look we may be putting some people out of business: for those who make their bread-and-butter writing stock music, they're going to have to move upstream. But the key thing here to understand is that you need to understand your value proposition. I believe that music valued for its human artistry is the most defensible against technological encroachment. I strongly encourage anyone who is hoping to or currently being paid in this industry to find and seek out ways by which their music can be valued artistically. If you do that, then you are inherently insulating yourself from the pressures of technology.

In this way, company members positioned stock music, as well as the people who did it, as aspects of the community that they themselves did not find worthy enough to protect from machines.

Perspectives from Other Composers within the Community

The argument that the community of composers would be willing to relinquish stock music, consistent with the perspective that Reverb's members themselves held as composers, meanwhile was selectively consistent with the beliefs of other members of their community, in a way that again formed a crucial part of how company members advanced the claim that the community believed what they themselves did. That is, their argument emphasized a majority perspective from within the community that was consonant with their own, and kept silent about a minority perspective that contradicted it.

Emphasizing Consonant Perspectives. Aligned with company members' belief that "we have an idea of what is valuable to the community because we were all musicians once," the argument that composers would be willing to relinquish stock music emphasized a consonant perspective from within the community, held by most other music composers. These composers also shared that they would be willing to allow machines to take over this kind of unartistic music and replace people in doing it. While they sometimes worried aloud that "incorporating machines into our music" would mean "moving away from magic and into technology" in ways that would just "break our world," they generally did not express these worries when talking about stock music. As one composer phrased it,

> I do see that there is a trend towards algorithms composing music, but I'm not bothered by it. In many ways, it's a good thing: there isn't a lot of time or space for creativity in a lot of these gigs that we work on nowadays. And so, I think it will be better to just let algorithmic music replace the composer in this kind of music; the composer is not going to feel like they're actually doing what they should be doing anyway.

Specifically, some indicated that having AI write stock music would give them the time and space to do work they valued doing more. As another composer who loved writing musicals shared with me,

> Stock music is not my highest priority. If the job is to make an advertisement, and a company needs music that is competent to delivering that, I totally think AI could deliver that. No reason it shouldn't! To me, it makes sense to use AI to automate stock music. It's a good application, where the music doesn't have to be high quality. I instead could be writing a musical; this is my favorite product of human civilization. I love it so much, and I want to make it. Stock music is not as creative.

Moreover, while they also acknowledged that relinquishing this music might put some members of their community out of work, they likewise argued that these people were not doing valuable work in the first place, and could be justifiably automated if they did not find ways to do more valued work. As one composer shared,

> In terms of AI replacing music, I think it's closest to replacing stock music: essentially, it's generating good stock music. If you put it in an online library, I wouldn't think twice. I think it's getting to a point where some composers are like, 'I'm starting to sweat as a stock music composer.' And I don't want to diminish the writing quality of stock music composers. But there's a saying in the industry: 'Why should a director choose your music?' You have to give the directors something, like the humanity or personality you put into your writing. That's the same sentiment we can feel in regard to AI. You have to be one step ahead.

Composers expressed a perspective that revealed that stock music, as well as the people who did it, indeed were not valuable enough to much of the community to protect from Reverb's AI, in ways consonant with what Reverb's members believed and emphasized about the broader community.

Keeping Silent about Contradictory Perspectives. Meanwhile, the argument that composers would be willing to relinquish stock music kept silent about a contradictory perspective on this work, which was held by a small set of composers in the community. While most composers felt that stock music detracted from them being able to do more valued work, and expressed their willingness to let go of stock music to machines, some composers expressed worry about allowing AI to take over this type of music, believing that stock music actually enabled their writing more valued music. That is, while stock music was not usually the focus of their careers or musical output, and while very few identified as solely composing stock music, it provided a type of work which often scaffolded composers' careers between commissions and during inevitable downtimes in demand for their work, especially for those who were not wildly successful yet. In other words, it allowed them to keep being composers and ultimately continue writing music they valued, as opposed to having to exit the profession. As one composer shared,

> I'd say that, for the majority, it is a side thing, with the exception of these guys who are just like killing it. I mean, I think it seems like a thing you do when you don't have a gig. You're not always going to have film screens. You're not always going to have a touring rock band, so here's the way to keep the momentum going when you're not working. Between projects I often work on stock music. There's

> always the option to have those usage royalties trickling in every few months on the side of writing bespoke compositions for projects.

They thus felt that its disappearance "would definitely affect people," given that "it's something that actually made being a composer viable," and were less willing to relinquish stock music to machines; as one composer phrased it, "I think it's good for us as composers to have stock music." However, Reverb's members remained silent about these contradictory perspectives, instead advancing the position that stock music was justifiably automatable.

CONTRIBUTIONS AND CONCLUSIONS

In this study, I ethnographically explored a startup called Reverb, which was developing an AI that is threatening a form of work long used to distinguish humans from machines: artistic expression, here in the form of music composition. All of those who worked at the organization primarily identified as members of the occupational community their AI would affect: music composers. These people were in an analytically puzzling position. While the literature has demonstrated how members of occupations affected by technologies have strived to preserve their community's relationship with their work (e.g., Anteby, Chan, and DiBenigno 2016; Van Maanen and Barley 1984), these people were developing a technology that might compromise it. I discovered how they justified behaving in this way: they positioned the music they were automating as work that they and their community would not find worthy enough (e.g., Lamont 2012; 2018) to be protected from the advance of machines. My study paid close attention to the value that these people infused, or did not infuse, into their work, to understand what they held onto and let go about their community when developing an AI technology.

Through such study, I build on scholarship which has examined AI and how work might change. Studies have investigated whether AI might augment or automate workers by focusing

on the context of its use: how people interpret it and shape its effect on their work. In one notable example, Brayne (2020: 87) studied police officers who worried that the rise of predictive policing technologies would devalue "the local, experiential, street knowledge they accumulated." They resisted their own deskilling by refusing to follow the technologies' directives, frustrating higher-ups' attempts at implementing these technologies into policing practice. This research, among others that have recently emerged on AI, mirrors an extensive literature on technology and its effect on work within organizations, which historically has also focused on technologies at the point of use (e.g., Barley 1988; 2020; Leonardi and Barley 2010; Orlikowski and Scott 2008). These scholars have stressed users' ability to push back against and shape what consequences these technologies might have, attempting to nuance scholarship which has emphasized the deterministic influence of these technologies over people's lives.

However, this approach overlooks the fact that "the implications of a new technology are not always the product of ongoing action and interpretation at the point where people are using" it (Bailey and Barley 2020: 2). While at Reverb, I gained access to an aspect of the technology's biography that often has been overlooked by these scholars: its development. I focused on the extensive effort that the AI's designers put into breathing life into the future they imagined might proceed from their technology. That is, they inscribed a vision for how composers' work might and should change into the AI's design (Akrich 1992), and clothed their technology in symbolic claims to justify its advance. In so doing, they were able to build and deploy an argument, as embodied in their AI, on how the composer occupational community and its relationship with its work should be. Those within organizations developing these technologies (e.g., Orlikowski 1992; Vaughan 1999) thus participate in structuring work, setting up potential social situations even before users interact with their technology. Paying attention to these often black-boxed but

powerful organizational actors can contribute to our understanding of their cultural perspective and its role in the technologies they build, as well as the role that work plays in evaluative practices.

The Cultural Perspective of Occupation Members Developing Technologies

A focus on the organizations behind technology development can contribute to our understanding of their members' cultural perspective (e.g., Barley 2005; Forsythe 2001): how they see the world, such as what they value about it, and what role this perspective plays in their approach to designing technologies. This has become important to consider given that some of those developing AI technologies have come from the occupations affected by it, calling into question how being a part of these communities might shape AI technologies' design (e.g., Joyce et al 2021). Scholarship often has not directly studied these occupation members within technology development organizations. That said, the literature generally has imagined the occupations within which they are contextualized as gemeinschaft communities, whose members "share bonds of solidarity or mutual regard and partake of a communal way of life that contrasts in idyllic ways with the competition, individualism, and rational calculation of [gesellschaft] self-interest" (Van Maanen and Barley 1984: 8). Aligned with this, studies have found that those affiliated with an occupation approach technologies in ways that protect each other, preserving or expanding the boundaries that the community has drawn around its work (Abbott 1988).

However, my findings demonstrate how these communities may be more internally fragmented and stratified than we often have imagined them. Within my setting of music composers, there were some forms of work that members held in higher regard than others, with the predominant view being that stock music lacked value. Consistent with these distinctions, and in keeping silent about contradictory perspectives on stock music from within the

community, Reverb's members were able to qualify what they owed those who did stock music, claiming that this type of work was not worthy enough to be saved from the advance of machines. In so doing, they argued for shrinking the boundaries around their community and its relationship with its work. Thus, while "scholars emphasize how occupational groups make claims – often against other occupations – to negotiate and change jurisdictional boundaries around the content of their work in an effort to enhance their groups' prestige, influence, and compensation" (Anteby, Chan, and DiBenigno 2016: 205), my study demonstrates how members may be able to make such claims against each other, sloughing off parts of their occupation and its work while moving toward a technological future.

These findings allow us to reconsider what it means for people within technology development organizations to be members of the occupational communities their technology may affect. That is, membership is a double-edged sword: while communities can be the site of intra-occupational solidarity, as much literature already has emphasized, communities also can be the site of intra-occupational evaluation (e.g., Lamont 2012), whereby members actively assess and make arguments about who and what is worthy enough to be considered a legitimate part of the community. Consequently, rather than necessarily protecting their community and its relationship with its work, occupation members like those at Reverb may be able to justify cannibalizing their own through the technologies they themselves build, in ways consistent with some of their community's extant hierarchies of worth. Understanding what the future of work may hold thus requires looking closely at the cultural perspective of those responsible for producing this future: what they find unworthy of being held onto and protected from being lost.

Bringing the Work Itself into Our Understanding of Evaluation

A focus on the organizations behind technology development also can contribute to our understanding of the role that work plays in evaluation. Scholars often have studied evaluative practices within settings where work is done, given that these settings are important sources of inequalities in worth and recognition. In a foundational statement, Bourdieu ([1983] 1994) studied the social conditions under which works of art, such as poetry and novels, are produced, focusing on how inequalities in worth and recognition between artists come into being. However, he and many others studying work settings such as fields of cultural production often have neglected to theorize on an integral part of how these settings function: the "work itself" (Becker 2006). Nevertheless, work consistently has haunted descriptions of evaluative practices. In a notable example, Stark (2020) describes the rise of a "performance society," in which more and more domains of life are being evaluated. While he does not explicitly theorize about work, he draws on examples that revolve around it, such as the fact that teachers and professors are being evaluated on their instruction at a rate and intensity they were not previously. Studies like his suggest that work may be crucial to evaluation.

In this vein, my study demonstrates how work, rather than being incidental to evaluation, can be constitutive of evaluation. That is, people evaluate others, such as those within their own communities, through and based on the work they do: assessments of this work – namely, whether it is an exemplar of good craftsmanship and worthy of recognition – are vehicles for how people evaluate those who do this work. This was the case at Reverb, where company members grounded their evaluations of the broader music composition community – namely, who and what was worthy enough to remain, as opposed to disappear – in specifics of its work. They pulled on their own lived experience with and nuanced understandings of the work's technical characteristics to think through its value, as well as the worth of the people who did it.

Specifically, Reverb's members pointed to stock music's formulaic phrase structure to explain why they did not value it, using characteristics of the work itself to justify getting rid of it and the parts of the community who engaged in it it. Understanding evaluative practices, as well as the inequalities they generate, requires knowing about the particulars of the work that people do and how they interpret each other through them.

Looking at work and the ways by which people evaluate each other through it may only become increasingly relevant amid the rise of a new economy. Our experience of the changing nature of work and organizing (Barley, Bechky, and Milliken 2017) has entailed figuring out what we want to take into the future with us: what we find worthy enough about ourselves, our work, our organizations, and our broader communities to hold onto, as opposed to leave behind. Some aspects of our lives have clearly won out, such as our commitment to technological innovation and the sense of "progress...efficiency, [and] rationality" that accompanies it (Bechky 2020: 610; e.g., Burrell and Fourcade 2021; Wajcman 2014; Zukin 2020). Others, meanwhile, have not, leading to the "growing number of…recognition claims" that groups, such as workers left behind by transformations across Western economies, have used to demand "to be treated with dignity and respect" (Lamont 2018: 420). We thus have had to struggle to be taken into the future, as opposed to be left in the past. At stake has been an aspect of our humanity that cuts at its very core: the worth of what we do, and, by extension, ourselves.

REFERENCES

Abbott, A. (1988). The System of Professions: An Essay on the Division of Expert Labor. Chicago, Illinois: University of Chicago Press.

Akrich, M. (1992). The description of technical objects. In W Bijker and J Law (eds.), Shaping Technology: 205-224. Cambridge, Massachusetts: MIT Press.

Anteby, M. (2013). Relaxing the taboo on telling our own stories: Upholding professional distance and personal involvement. Organization Science, 24(4): 1277-1290.

Anteby, M., Chan, C. K., & DiBenigno, J. (2016). Three lenses on occupations and professions in organizations: Becoming, doing, and relating. Academy of Management Annals, 10(1): 183-244.

Bailey, D. E., & Barley, S. R. (2020). Beyond design and use: How scholars should study intelligent technologies. Information and Organization, 30(2): 1-12.

Barley, S. R. (1986). Technology as an occasion for structuring: Evidence from observations of CT scanners and the social order of radiology departments. Administrative Science Quarterly: 78-108.

Barley, S. R. (1988). Technology, power, and the social organization of work: Towards a pragmatic theory of skilling and deskilling. Research in the Sociology of Organizations, 6: 33-80.

Barley, S. R. (2005). What we know (and mostly don't know) about technical work. In S Ackroyd, R Batt, P Thompson, & PS Tolbert (eds.), The Oxford Handbook of Work and Organization: 377-403. New York, New York: Oxford University Press.

Barley, S. R. (2020). Work and Technological Change. New York, New York: Oxford University Press.

Barley, S. R., & Beane, M. I. (2020). How should we study intelligent technologies' implications for work and employment?. In SR Barley (ed.), Work and Technological Change: 69-115. New York, New York: Oxford University Press.

Barley, S. R., Bechky, B. A., & Milliken, F. J. (2017). The changing nature of work: Careers, identities, and work lives in the 21st century. Academy of Management Discoveries, 3(2): 111-115.

Barley, S. R., & Kunda, G. (1992). Design and devotion: Surges of rational and normative ideologies of control in managerial discourse. Administrative Science Quarterly: 363-399.

Barrett, M., Oborn, E., Orlikowski, W. J., & Yates, J. (2012). Reconfiguring boundary relations: Robotic innovations in pharmacy work. Organization Science, 23(5): 1448-1466.

Beane, M. (2019). Shadow learning: Building robotic surgical skill when approved means fail. Administrative Science Quarterly, 64(1): 87-123.

Bechky, B. A. (2003). Object lessons: Workplace artifacts as representations of occupational jurisdiction. American Journal of Sociology, 109(3): 720-752.

Bechky, B. A. (2020). Evaluative spillovers from technological change: The effects of 'DNA envy' on occupational practices in forensic science. Administrative Science Quarterly, 65(3): 606-643.

Becker, H. S. (2006). The work itself. In HS Becker, RR Faulkner, & B Kirshenblatt-Gimblett (eds). Art from Start to Finish: Jazz, Painting, Writing, and Other Improvisations: 21-30. Chicago, Illinois: University of Chicago Press.

Beunza, D. (2019). Taking the Floor: Models, Morals, and Management in a Wall Street Trading Room. Princeton, New Jersey: Princeton University Press.

Bourdieu, P. ([1983] 1994). The field of cultural production, or: The economic world reversed. In R Johnson (ed.). The Field of Cultural Production: Essays on Art and Literature. New York, New York: Columbia University Press.

Bowker, G. C., & Star, S. L. (1999). Sorting Things Out: Classification and Its Consequences. Cambridge, Massachusetts: MIT Press.

Braverman, H. (1974). Labor and Monopoly Capital: The Degradation of Work in the Twentieth Century. New York, New York: NYU Press.

Brayne, S. (2020). Predict and Surveil: Data, Discretion, and the Future of Policing. New York, New York: Oxford University Press.

Brynjolfsson, E., & McAfee, A. (2014). The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies. New York, New York: WW Norton & Company.

Burawoy, M. (1979). Manufacturing Consent: Changes in the Labor Process under Monopoly Capitalism. Chicago, Illinois: University of Chicago Press.

Burrell, J., & Fourcade, M. (2021). The society of algorithms. Annual Review of Sociology, 47(23): 1-25

Davenport, T. H., & Kirby, J. (2016). Only Humans Need Apply: Winners and Losers in the Age of Smart Machines. New York, New York: Harper Business.

DiBenigno, J. (2018). Anchored personalization in managing goal conflict between professional groups: The case of US Army mental health care. Administrative Science Quarterly, 63(3): 526-569.

Edwards, R. (1979). Contested Terrain: The Transformation of the Workplace in the Twentieth Century. New York, New York: Basic Books.

Faraj, S., Pachidi, S., & Sayegh, K. (2018). Working and organizing in the age of the learning algorithm. Information and Organization, 28(1): 62-70.

Forsythe, D. (2001). Studying Those Who Study Us: An Anthropologist in the World of Artificial Intelligence. Palo Alto, California: Stanford University Press.

Gerson, K., & Damaske, S. (2020). The Science and Art of Interviewing. New York, New York: Oxford University Press.

Gouldner, A. W. (1954). Patterns of Industrial Bureaucracy. Glencoe, Illinois: Free Press.

Gray, M. L., & Suri, S. (2019). Ghost Work: How to Stop Silicon Valley from Building a New Global Underclass. New York, New York: Eamon Dolan Books.

Hallett, T., & Ventresca, M. J. (2006). Inhabited institutions: Social interactions and organizational forms in Gouldner's Patterns of Industrial Bureaucracy. Theory and Society, 35(2): 213-236.

Hughes, E. C. (1994). Work and self. In LA Coser (ed.), On Work, Race, and the Sociological Imagination. Chicago, Illinois: University of Chicago Press.

Huising, R. (2015). To hive or to hold? Producing professional authority through scut work. Administrative Science Quarterly, 60(2): 263-299.

Iansiti, M., & Lakhani, K. R. (2020). Competing in the Age of AI: Strategy and Leadership When Algorithms and Networks Run the World. Boston, Massachusetts: Harvard Business Publishing.

Joyce, K., Smith-Doerr, L., Alegria, S., Bell, S., Cruz, T., Hoffman, S. G., Noble, S., & Shestakofsky, B. (2021). Toward a sociology of artificial intelligence: A call for research on inequalities and structural change. Socius, 7: 1-11.

Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: The new contested terrain of control. Academy of Management Annals, 14(1): 366-410.

Knorr Cetina, K., & Bruegger, U. (2002). Global microstructures: The virtual societies of financial markets. American Journal of Sociology, 107(4): 905-950.

Lamont, M. (2012). Toward a comparative sociology of valuation and evaluation. Annual Review of Sociology, 38: 201-221.

Lamont, M. (2018). Addressing recognition gaps: Destigmatization and the reduction of inequality. American Sociological Review, 83(3): 419-444.

Lamont, M., Beljean, S., & Clair, M. (2014). What is missing? Cultural processes and causal pathways to inequality. Socio-Economic Review, 12(3): 573-608.

Lamont, M., & Molnár, V. (2002). The study of boundaries in the social sciences. Annual Review of Sociology, 28(1): 167-195.

Lebovitz, S., Lifshitz-Assaf, H., & Levina N. (2021). To incorporate or not to incorporate AI for critical judgments: The importance of ambiguity in professionals' judgment process. Working Paper.

Leonardi, P. M., & Barley, S. R. (2010). What's under construction here? Social action, materiality, and power in constructivist studies of technology and organizing. Academy of Management Annals, 4(1): 1-51.

Lifshitz-Assaf, H. (2018). Dismantling knowledge boundaries at NASA: The critical role of professional identity in open innovation. Administrative Science Quarterly, 63(4): 746-782.

Nelson, A. J., & Irwin, J. (2014). 'Defining what we do—All over again': Occupational identity, technological change, and the librarian/Internet-search relationship. Academy of Management Journal, 57(3): 892-928.

Noble, D. F. (1977). America by Design: Science, Technology, and the Bise of Corporate Capitalism. New York, New York: Knopf.

Orlikowski, W. J. (1992). The duality of technology: Rethinking the concept of technology in organizations. Organization Science, 3(3): 398-427.

Orlikowski, W. J., & Scott, S. V. (2008). Sociomateriality: Challenging the separation of technology, work and organization. Academy of Management Annals, 2(1): 433-474.

Oudshoorn, N. E., & Pinch, T. (2003). How Users Matter: The Co-construction of Users and Technologies. Cambridge, Massachusetts: MIT Press.

Perrow, C. (2014). Complex Organizations: A Critical Essay. Brattleboro, Vermont: Echo Point.

Pugh, A. (2018). Automated health care offers freedom from shame, but is it what patients need? The New Yorker.

Roy, D. F. (1959). 'Banana time': Job satisfaction and informal interaction. Human Organization, 18(4): 158-168.

Sachs, S. E. (2020). The algorithm at work? Explanation and repair in the enactment of similarity in art data. Information, Communication & Society, 23(11): 1689-1705.

Scott, M. B., & Lyman, S. M. (1968). Accounts. American Sociological Review, 33(1): 46-62.

Sennett, R. (2008). The Craftsman. New Haven, Connecticut: Yale University Press.

Shestakofsky, B. (2017). Working algorithms: Software automation and the future of work. Work and Occupations, 44(4): 376-423.

Simpson, I. H. (1989). The sociology of work: where have the workers gone? Social Forces, 67(3): 563-581.

Stark, D. C. (2009). The Sense of Dissonance: Accounts of Worth in Economic Life. Princeton, New Jersey: Princeton University Press.

Stark, D. C. (ed). (2020). The Performance Complex: Competition and Competitions in Social Life. New York, New York: Oxford University Press.

Strauss, A. L. (1987). Qualitative Analysis for Social Scientists. New York, New York: Cambridge University Press.

Vallas, S. P. (2006). Empowerment redux: Structure, agency, and the remaking of managerial authority. American Journal of Sociology, 111(6): 1677-1717.

Van Maanen, J., & Barley, S. R. (1984). Occupational communities: Culture and control in Organizations. Research in Organizational Behavior: 287-365.

Vaughan, D. (1999). The role of the organization in the production of techno-scientific knowledge. Social Studies of Science, 29(6): 913-943.

Wajcman, J. (2014). Pressed for Time: The Acceleration of Life in Digital Capitalism. Chicago, Illinois: University of Chicago Press.

Weber, M. ([1930] 1992). The Protestant Ethic and the Spirit of Capitalism. New York, New York: Routledge.

Zuboff, S. (1988). In The Age of The Smart Machine: The Future of Work And Power. New York, New York: Basic Books.

Zuboff, S. (2019). The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power. New York, New York: PublicAffairs.

Zukin, S. (2020). The Innovation Complex: Cities, Tech, and the New Economy. New York, New York: Oxford University Press.