Algorithmic Living: A Practice-based Approach to Studying Algorithmic Systems

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WHITEPAPER SUMMARY
This whitepaper engages with the recent attention to algorithmic systems in fields such as human-computer interaction (HCI), social computing, and critical data studies and draws our attention to the ways we conceptualize algorithms – that is, how we talk about and in turn approach them as empirical phenomena. Drawing on two cases (enterprise email and online dating) from my empirical work, I discuss how taking a practice-based approach can help expand the algorithmic studies toolkit. Rather than reifying algorithms (objectifying them as stable technical artifacts) or bounding algorithms (taking specific software platforms and applications as units of analysis), my work takes *practices* as the central unit of analysis. Doing so demonstrates how encounters with algorithmic systems can be conceptualized as lived-through – with their socio-technical features dynamic, contingent, and enacted through various everyday encounters. I discuss how this approach opens up new inquiries and how these concerns offer a perspective useful to the workshop's theme of algorithmic trust and trustworthiness.

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Algorithm studies; Practice Theory; Social computing

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H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION
Algorithmic systems are pervasive aspects of contemporary life – from customizing our movie recommendations to predicting flu outbreaks or our next breakup, the algorithmic reach is becoming an increasingly ubiquitous and intimate part of contemporary life. Algorithmic outputs claim to know us better than we know ourselves, interjecting into our social relationships [1, 2], our work lives [6], and even our own notions of identity and personhood [4,10].

The empirical study of algorithmic systems poses several methodological challenges – for example, algorithmic curation is often invisible, rendering it difficult for researchers to investigate its impact on participants [5,8]. In this whitepaper, I engage with another challenge to studying algorithmic systems – how we, as researchers, conceptualize algorithms. It is difficult to "know" algorithms in the traditional sense, given their complexity, as well as both their technical and proprietary opacity [3,9]. Rather than focusing on algorithms as "things," I propose an alternative approach – instead focusing on individuals' practices within algorithmic systems. Doing so helps us move beyond algorithms as stable artifacts, which are contained within specific applications or platforms. Instead, we are able to gain insight into how people *experience* these as broader, complex socio-technical systems that are lived-through and given meaning in everyday action. To make this point, I draw on two cases from my empirical work taking a qualitative and exploratory look at what "algorithmic living" looks like in different contexts: enterprise work and online dating.

FRAMING AND EXPECTATIONS: THE CASE OF ENTERPRISE EMAIL
The first case from my empirical work I draw on is enterprise email, an example from a fifteen month ethnographic study I conducted on the development and deployment of a number of "smart" (i.e., machine intelligence-backed) enterprise applications at a large, global organization. One such application, a new email client featured a number of smart features one of which was an advanced search engine. This was consequential in that the application's design was centered around searching as the underlying mode of organizing one's email, rather than sorting or labeling. Workers made sense of this algorithmic feature by drawing on their prior experiences with smart search. Consider this quote from a participant on his experiences with the new app, recapping how the search feature was "*super-fast*" and he loved it, but then continuing: "*So people are used to doing Google-type searches in their email, Google-type searches on the Web*," he said. "*We're used to that. So I'm not saying that has to be the same thing. But I'm saying that we need to give, we need to have the same capabilities… Everything is about full text search, so why can't we do that in our emails*?" In this example we can see how the experiences with one algorithmic platform (Google search) directly inform experiences with another (the new email search feature). The "algorithmic system," then, goes beyond each platform singularly – its contours are instead draw through practice.

Practice Theory is a sociological approach that sees meaning making as an interactive process, one that is embodied and situated through what Bourdieu [1] called "habitus." As the name implies, these can be thought of as

"habits" in shorthand – meaning that individuals (like this participant) are never blank slates when they encounter technological systems but instead continually make sense of interactions in relation to their prior experiences. Such experiences serve as technological frames [7] that shape how people make sense of technologies – frames inform but do not determine meaning making. This is instructive in our interest on algorithms, helping us move beyond an objectification of algorithms as fixed, determined technical artifacts towards a conceptualization that captures their contingent and dynamic qualities – how people make sense of algorithmic systems is situated and embodied through their prior experiences and ongoing encounters with such systems in everyday life.

With the workshop's theme on trustworthiness in mind, a focus on technological framing practices asks us to consider not only do individuals consider a specific algorithmic output trustworthy, but also how those judgments emerge in relation to other algorithmic outputs. What does it mean to say trust and trustworthiness are relational? It provokes us to consider how individuals "bring in" their prior technological experiences and understandings to their emergent interactions and how novel algorithmic systems are given meaning in relation to this broader biography of technological interaction.

STRATEGIC CALCULUS: THE CASE OF ONLINE DATING

The second case from my empirical work I draw on is an exploratory study of online dating conducted in 2016. The study aimed to capture a variety of perspectives, with recruitment criteria only that participants were currently using one or more online dating platforms or websites or had in the past six months. Of the 17 individuals we spoke to, all had experience with multiple dating platforms and the majority was using more than one platform currently. In eliciting their experiences, complex narratives would emerge in interviews with individuals evaluating the different types of "matches" they could find on different platforms – OkCupid, for example, is known for its algorithmic "match percentage" rank that assigns a numerical compatibility score between every user dyad. Many used this to "screen" profiles, creating personal metrics to make decisions on which matches to engage with (e.g., only reply to messages from people with a match percentage above a certain threshold). Others used the match score in OkCupid only provisionally, instead digging "under the hood," examining a possible match's specific Q&A data (the "guts" behind the algorithmic matching) to contextualize answers and make more situated judgments. This type of algorithmic scrutiny is not possible in other platforms, for example the Tinder app uses GPS coordinates to display a seemingly random assortment of profiles within a given geographic area. While Tinder provides significantly less opportunity to scrutinize matches (and contextualize the algorithmic matching process like OkCupid) participants still found it a useful tool to use in their online dating practices. While OkCupid might be considered more thorough from an information-gathering perspective, it also required more effort as one participant shared: "…*It is this kind of min/max problem of how much effort do you want to put in*," he explained. "*I don't have the energy for something like OkCupid even though I know that it will probably get me better quality matches, but at a much slower rate than something like Tinder*." Characterizing this cross-platform calculus as part chance, part strategy, he concluded: "*So I just kind of have to decide which dice I want to roll and how much effort I want to put into do that*."

Taking online dating *practices* as the central unit of analysis (rather than focusing on each specific platform individually) allows us to gain an understanding of how individuals move across different platforms in their everyday activities and indeed how the scope of the "algorithmic system" is more complex than interaction on one app. Through practice, multiple platforms are implicated – here, both OkCupid and Tinder come together to comprise individuals' algorithmic encounter in relation to online dating. In considering a practice-based perspective, we as researchers are able to more fully understand how people experience algorithmic systems and what (if any) boundaries they maintain between them.

CONCLUDING REMARKS

In this whitepaper, I have briefly outlined how a practice-based approach has been beneficial in my empirical efforts studying algorithmic systems. In taking practices as a central unit of analysis, this work has aimed to better understand algorithms as they are encountered in ordinary life; rather than a conceptualization of algorithms as stable objects, bounded within specific platforms, this approach offers insights into how the algorithmic encounter is lived-through in situated practice. Such a view helps us interrogate questions of algorithmic trust and trustworthiness, this workshop's theme, by provoking consideration of the ways in which notions of algorithmic credibility and trust are relational – that is, how trust is influenced by individuals' technological habitus or existing frames of reference, as I showed in the case of enterprise email. The practice-based approach I have outlined here also helps us consider the ways in which personal metrics or "strategic calculus" factor into the ways algorithmic systems are approached and assessed – with a system's scrutibility weighed against factors like effort and ease of use, as I examined through the case of online dating. These brief examples demonstrate how encounters with algorithmic systems can be conceptualized as lived-through – with their socio-technical features dynamic, contingent, and enacted through various everyday encounters – and the import of a practice approach in driving our understanding of "algorithmic living" forward.

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