Empowering workers with Artificial Intelligence tools

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Abstract

Technology has transformed the way we perform daily tasks and interact. Being able to understand how we interact with technology and develop better experiences is something that has driven human-centered design. This abstract shows some examples of how human-centered tools can be used in different areas such as rehabilitation, education, crowd work, among others. In particular, this abstract focuses on how artificial intelligence tools can empower workers to improve their working conditions.

As a context for the doctoral consortium, I list previous papers that may or may not be part of the doctoral dissertation. In the rehabilitation area, I studied how Nintendo Wii remote can be integrated into clinical and home-based rehabilitation exercise therapy systems (Leder et al. 2008). Related to creativity, I studied how interfaces can be used to orchestrate musicians (Savage et al. 2013). In the social computing field, I designed bots that coordinate citizens, such as for volunteering work (Toxtli et al. 2016) and for community work (Toxtli, Flores-Saviaga, and Savage) and designed interfaces to visualize targeted audiences (Savage et al. 2014). In relation to the education field, I developed bots that can help to scale the expert's feedback on learning platforms (Toxtli and Savage 2020a). In the labor field, I explored many tools that integrate A.I. in environments different than crowd work. One solution was TaskBot, an email bot able to help teams to manage their tasks (Toxtli, Monroy-Hernández, and Cranshaw 2018). Another smart interface is Expert Twin (Toxtli et al. 2018), a workspace that allows knowledge workers to get other relevant sources as they type; the personal crawler retrieves relevant content based on the context. In order to understand what the workers would take into account if they were asked to propose a new marketplace, I developed Meta-gig (Toxtli and Savage 2020b), a platform able to create Uber for X type of platforms.

The main contribution of this abstract is to understand how Artificial Intelligence can improve the crowd workers' conditions. The first step is to measure the amount of work (paid and unpaid) on online platforms. I designed and developed an audit tool (Toxtli, Suri, and Savage 2021) for Amazon Mechanical Turk (MTurk.) The tool measures the time spent in paid and non-paid activities such as those related to lack of guidance, payments, hyper-vigilance, and general logistics.

We found that workers spent around 33% of their time performing activities that were not paid. The findings help us to design tools to reduce the effect of the lack of guidance. We studied how novice crowd workers can improve their earnings by getting strategies learned from expert workers (Savage et al. 2020). We also identified that the future of the workers on the platform depends on the feedback they receive. The effect of unfair feedback can affect the ability to get good tasks or get ceased from the platform. In order to understand mechanisms that help to prevent this dynamic, I designed and developed Reputation Agent (Toxtli, Richmond-Fuller, and Savage 2020). This user interface implements a model that detects unfair reviews on working platforms. It prompted requesters when they gave an unfair review, reducing the number of unfair reviews.

The work shown in this abstract is intended to provide an overview of the work done thus far. I aim this content can give some ideas that can help to define a clear line of research for the dissertation.

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