

Designing for Responsible AI-Assisted Practices for the Public Sector A Case Study of the U.S. Child Welfare System

ABSTRACT

Public sector agencies in the United States are increasingly seeking to emulate business models of the private sector centered in efficiency, cost reduction, and innovation through the adoption of algorithmic systems. These data-driven systems purportedly improve decision-making; however, the public sector poses its own unique challenges where policies, practices, and organizational constraints mediate all decisions. Algorithms that do not account for these pertinent aspects of professional practice frustrate practitioners, diminish the quality of human discretionary work, and amplify biases in decision-making. A human-centered research agenda can help us develop algorithms centered in social-ecological theories that support the decision-making processes of practitioners, incorporate novel sources of data, and offer a means to evaluate algorithms in their real-world contexts.

This dissertation draws upon a case study of the child-welfare system and outlines responsible pathways forward for the design of human-centered algorithms in the public sector and contributes a holistic understanding of a complex sociotechnical system through deep ethnographic work, the design of a theoretical framework for algorithmic decision-making in the public sector, and computational narrative analysis of a critical data source that can help contextualize key factors and improve decision-making. It showcases the practical tradeoffs that need to be balanced for algorithm design - 1) at the human discretion level, I highlight different insertion points and goals of algorithms to augment practitioners' decision-making processes, 2) at the bureaucratic level, I highlight the constraints within which all decisions (human or algorithmic) must be made and how organizational resources can be leveraged to ensure the proper integration and adoption of an algorithmic system, 3) at the algorithmic level, I showcase how algorithm design can account for the uncertainties inherent within cases and support decision-making processes instead of providing predicted outcomes. This dissertation work has provided actionable steps for human-centered algorithm design to child-welfare leadership that will further help ensure that decisions are centered in evidence-based practice and lead to positive outcomes for families.