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Xinyu Fu
University of Pittsburgh, xinyu.fu@pitt.edu

Narayan Ramasubbu
University of Pittsburgh, narayanr@pitt.edu

Dennis Galletta
galletta@pitt.edu

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A Power Dependence Perspective

Xinyu Fu, University of Pittsburgh, Xinyu.fu@pitt.edu; Narayan Ramasubbu, University of Pittsburgh, narayanr@pitt.edu; Dennis Galletta, University of Pittsburgh, galletta@katz.pitt.edu

Gender inequalities in terms of labor force participation and wages are persistent in the manufacturing sector. We examine how an intervention through deployment of collaborative robots (cobots) and programmable artificial intelligence (AI) systems served to address gender inequality issues in a leading automotive glass manufacturing firm. Traditional autonomous robots are programmed to repeatedly perform one task, work independently, and remain stationary. In contrast, cobots are robots capable of learning multiple tasks and working alongside human operators. From the perspective of power-dependence, we theorized the balancing processes in power relations between cobots and workers, including the emergence of new group norms, role structures, and status hierarchies. Our analysis, based on data collected through structured interviews and in-situ observations, shows that the deployment of robotics and programmable AI systems improved labor force participation of female workers and helped narrow wage related inequalities. The study also illustrates how female workers leveraged robotics and AI technologies to improve their on-the-job training and utilized their analytical skills, emotional intelligence, and inclusive team management approaches for ascending to leadership roles.

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