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INTERSECTIONAL ANTIRACISM & TECHNOLOGY DESIGN: BUILDING FRAMEWORKS TO
ADVANCE JUSTICE AND EQUITY IN COMPLEX SOCIOTECHNICAL SYSTEMS

Abstract

Technology, far from being an equalizer, often further entrenches or sustains hierarchies in our society such as sexism, classism, racism, ableism as well as other forms of discrimination. Whether considering technology across scale: (1) as epistemology - the creation processes, norms, and ways of knowledge-making that become canon in fields like engineering and sciences; (2) technology as artifacts such as cellular phones or satellites; (3) technology as complex product systems such as a nuclear reactor or a rocket; or (4) technology as sociotechnical systems such as the nuclear or aerospace designs; and (5) technology as ecosystems or industries—assimilationist and exclusive ideas about issues like class and race are enshrined into technologies during their development, design, and distribution within society. In order for technology at any scale to create and sustain intersectional equity—we consider a systems architecture analysis of technology design process with the goal of producing equitable outcomes in society. How can engineers, designers, policymakers, and consumers use principles of antiracism and intersectionality to advance justice in technologies across scale: creation processes, artifacts, complex product systems, and sociotechnical systems? We consider technology as sociotechnical systems and industries and use the aerospace sector and the nuclear enterprise as examples. The nuclear enterprise and the aerospace sector are two industries which have historical overlap, and lessons may be learned from the other to create more antiracist and equitable outcomes within each. Developed in the mid-20th century, both industries have dual-use civilian and military applications, due to which their development played a pivotal role in diplomacy during the Cold War. In early stages of their development, cooperation to create international treaties and norms attempted to set standards for civilian access and use of both aerospace and nuclear technologies. Both industries have an air of technological prestige and are regarded even today as emblematic of modernity and national pride. All of this makes mastery of the embedded technologies desirable for states in the context of diplomacy and national industrial development. Both industries face challenges today related to access, equity, and policy around issues like climate justice and techno-colonialism. We consider these two sectors within the context of systems architecture, antiracism, and intersectionality in order to propose a more just, liberatory, and equitable future for each sector and its role in society.